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The achievement of Robbins I

Building a better tomorrow

The Robbins report on higher education was published 20 years ago this autumn. To most, it has come to dominate the years between. It put reflected, part moulded, but in both cases most eloquently, the aspirations of British higher education's most important generation since the founding of the great civic universities in the middle years of Victorian England, the Scottish Enlightenment of 80 years before, or even the golden age of the early modern university between the Reformation and the Civil War. Robbins - the name is sufficient to stir hopes and impressions that are often quite distant from the detailed text of the report.

Twenty years later there are three views of the legacy of Robbins. The first is that the report was entirely indigenous, in the sense that it grew out of the culture of the post-war British university; and that its assumptions are so much part of the fabric of modern higher education that they cannot in any substantial sense be rejected. The second, really an extension of the first, is that Robbins was also a backward-looking report, deeply committed to a vision of liberal higher education for scholarly gentlemen-citizens that was already out of date in 1963; that it was a particular reflection of an anti-entrepreneurial strain in Britain's elite culture; and that consequently Anthony Crosland's binary modification to build up "practical" forms of higher education was fully justified.

The third view is that Robbins was almost the last in a long line of reports in a tradition of Whiggish reform; that the impulse of reform embodied in that tradition was both a reaction to and a product of industrial revolution and empire; and that when ten years after Robbins and ten years ago we came sharply up against the incontrovertible fact of painful economic decline, reform became dispensable, a national judgement apparently confirmed as recently as June 9.

For those who favour this view Robbins becomes if not a mistake then a deviation. Somewhere in the last 20 years higher education went off course. The job in the 1980s is to put it back on course. Those who held to the first (and second?) views see the task ahead in almost opposite terms, to regain the momentum of Robbins that has been lost in recent years. Over the next few weeks I shall try to discuss the broad themes of Robbins, not in the cause of making an obituary, but in an attempt to make the choice between those two views.

Apart from Oxford and Cambridge and the four ancient Scottish universities of Edinburgh, Glasgow, Aberdeen, and St Andrews, the British universities are the product of the nineteenth and twentieth centuries. They were created to meet the new intellectual demands stimulated by the growing elaboration of science, the new vocational demands of a rapidly industrializing economy, and the new social demands produced by the development of a liberal democracy and the educational revolution that was its inevitable accompaniment. Most of the great civic universities of the North had foundations established through the efforts of local civic and commercial elites. So from their earliest days British universities were very much part of modern society. Indeed it is possible to be more positive, and to argue that the universities of the nineteenth century were key instruments of modernization.

The comparatively recent origin of the British university system needs to be emphasized. More than half of our present universities had not been established in 1900. Indeed almost half have only become universities since 1945. Although some of these had much earlier and deeper roots within technical education, it is the total number of

students in the measure, the British university appears an even younger institution. A case can be made for regarding our present universities as very much post-war institutions. In 1958/59 there were still fewer than 70,000 full-time students in higher education (50,000 in the universities). In 1980/81 there were more than half a million students, 307,000 of whom were in universities.

Although it would be misleading to ignore the influence of tradition, it would be equally misleading not to acknowledge that our present system of universities was largely created during the 1950s and 1960s. It happened just yesterday, not a century or more ago. The typical British university today is the product of the University Grants Committee's plans for development made during the 1950s and of the Robbins committee's blueprint for expansion that was so spectacularly executed during the 1960s and 1970s.

Their first objective was the expansion of the universities. But why? This general desire to support a larger university system needs to be unpicked because it embraced many, often divergent, motives. Some paradoxically perhaps saw expansion as a conservative policy - in two senses. First, they argued that because of rising standards in the schools and wider expectations of social mobility after 1945 entry to university was in danger of becoming much more competitive. The Robbins committee - used "the argument" although it moved far beyond it in its support for expansion. The Robbins principle - "all young persons qualified by ability and attainment to pursue a full-time course in higher education should have the opportunity to do so" - was translated into an operational policy which in practice meant that entry into higher education for those with A levels should be by and large not be allowed to become more competitive than it had been at the beginning of the 1960s.

As the 1950s went by, the belief grew that universities were facing a crisis, a damaging excess of demand over supply, all too reminiscent of the housing shortage of the immediate post-war period. Well before Robbins the UGC in 1958 had remarked on the consequences of the rise in the birth rate after the war and the growing tendency of young people to stay on at school and to obtain the qualifications for entry to higher education. By 1963 the problem seemed much more urgent.

The second sense in which expansion could be regarded as a conservative policy was that any other policy would have led to a substantial change in the position of the universities within higher education. To suppress growing student demand would lead to a damaging rise in entry standards. The likely outcome would be to place greater emphasis on academic standards, narrowly conceived when admitting students, and so devalue those broader extra-academic qualities to which the liberal university tradition attached considerable importance. Under these conditions the universities might become, in the view of an influential segment of opinion within them, over-academized; they would certainly be very different from the pre-war universities. To divert student demand into other, non-university, institutions would present a double danger: universities would not only become over-academized but they would also lose their hegemony over higher education as a whole.

So even conservatives had little choice but to support the post-war expansion of the universities. Whatever the long-term dangers, the failure to expand would in the short term both jeopardize the internal character of the university and undermine its external status within higher education as a whole. Academic hot-houses by pas-

sion by expansion and pushed to the margin of society could hardly appear an attractive future for institutions that treasured their history and remoteness to the *studium generale* of the middle ages and which in Britain at any rate had acquired particularly incestuous links with the administrative élite.

Others supported the expansion of the universities for less defensive reasons. Renewing the nineteenth century theme of the universities as instruments of modernization, they placed particular emphasis on the urgent need to relate university development more closely to post-war social and economic demands. These can be divided into social demands which naturally took the form of pressure to expand opportunity for higher education, and economic demands which were expressed through the demand partly for theoretical knowledge that could be productively employed and partly for highly skilled manpower. In practice these two sets of demands were very much confused.

Both themes were taken up strongly in the Robbins report which contained what is still probably the best statement of the "social" case for higher education and paid far more attention to the parallel "economic" case than many of its critics have been prepared to concede. The committee saw its task in clear terms: "It has come about that, 17 years after the passing of the great Education Act of 1944, which inaugurated modern changes in the organization of education in the schools, we have been asked to consider whether changes of a like order of magnitude are needed at a higher level." The historical perspective of the Robbins report is still impressive. The committee saw its responsibility in the context of an unfolding educational revolution that reached back at least to 1870.

To Robbins the "economic" case for expansion was always secondary, or perhaps more accurately it was subsumed in the broader "social" case. The committee believed that, however much general importance needed to be attached to an adequate supply of highly skilled manpower, it was difficult to translate this into detailed operable policies. Having drawn a perhaps over-sharp contrast between manpower planning and student demand as the alternative engines of higher education expansion, the committee chose the latter with perhaps too few qualifications.

Yet the Robbins report made a series of recommendations which showed that it was far from immune from the contemporary enthusiasm for science and technology; it proposed that five Special Institutions for Scientific and Technological Education and Research (SISTERs) along the lines of the Massachusetts Institute of Technology should be established, that the colleges of advanced technology should be promoted to full university status; and that the Council for National Academic Awards should be created so ending the universities' monopoly of awarding degrees. The committee also believed that some of the regional colleges of technology (now incorporated into the polytechnics) should become universities. If the full Robbins package had been accepted, it would have led to a significant injection of the values and practices of technology into the university system.

However, perhaps the most significant achievement of the Robbins report was to convince most people in universities that substantial expansion of the system could take place without significant erosion of academic standards. The committee was clear that excellence had to be maintained, but it denied that this was incompatible with expansion. First, the report pointed out that past expansion had not damaged standards. That it considered in detail the concept of a limited pool of

ability only to conclude "we think there is no risk that within the next 20 years the growth in the proportion of young people with qualifications and aptitudes will be restrained by a shortage of potential ability... If there is to be talk of a pool of ability, it must be a pool which surpasses the widow's curse in the Old Testament". The committee was profoundly convinced of the possibility of improvement without disturbance and was largely successful in spreading this Whiggish confidence through the universities. Expansion therefore became not a threatening prospect but a semi-moral duty.

This first objective was half-achieved. On the one hand the universities successfully accomplished a most spectacular expansion of student numbers. In 1957/58 there were only 97,801 full-time students in British universities; ten years later this had more than doubled to 205,195; and ten years after that in 1977/78 the total stood at 277,000. According to the latest available figures there are 309,000 full-time students in the universities. So in less than a generation there has been more than a three-fold expansion.

There has also been a large increase in the number of universities. In 1957 there were still only 24 institutions on the UGC list; by 1982 there were 53 institutions. This spectacular expansion was not achieved at the cost of lower standards, so justifying the optimism of the Robbins committee and disproving the well publicized fears of those who cried that "more means worse".

However, the success of expansion has to be qualified in two respects. First, its scale did not in the end make unnecessary to establish rival institutions in the form of the polytechnics with consequences that are still being worked out 20 years later. The pattern of expansion tells the story. The decade from 1958 to 1968, before the polytechnics got under way, was a period of unrestrained university expansion with a growth of 110 per cent in student numbers. The next decade in which the polytechnics successfully established themselves was a period of much slower growth, a 35 per cent increase in the number of university students between 1968 and 1978.

Second, although the strongest motive for university expansion in the first instance may have been the desire to enhance Britain's effort in science and technology, the most rapid growth was not in science and technology but in social studies and to lesser extent humanities.

Of course this proportional decline in science and technology students masks the very substantial increase in their actual number. It is also misleading if it leads to the conclusion that universities deliberately held down science and technology's share. In fact there were empty places in science and technology departments in most universities throughout this period, and universities consistently admitted science and technology students with lower entry qualifications than those possessed by arts and social sciences students.

Yet, whatever the excuse, the facts remain: the Robbins expansion of the universities, which had so clearly been envisaged by Government as an important element in a drive for industrial modernization, had instead revivified the humanities and almost created the social sciences from scratch. A small cloud on a distant horizon in the happy 1960s. It had grown by the 1980s to cast a gloomy shadow over the universities. Next week I shall discuss the second broad theme of Robbins: liberating undergraduate courses from the curse of creeping specialization.

Peter Scott
Laura Taylor is on holiday. He will be back on September 2.

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New centre will promote Britain, say economists

by Paul Flather

A new economic policy research centre which aims to rival ventures in America and Europe and project British economic thinking internationally will start work in London in October.

It is to be modelled on the National Bureau of Economic Research based in Cambridge, Massachusetts, which acts as an "economics multiversity" but with no tenure staff. The centre will draw a group of 40 to 50 research associates from the universities and academic community.

Research will focus on the effects of international trade and financial money flows. Discussions are currently underway to finalize four detailed research programmes in international macroeconomics, international trade, perspectives in applied theory and econometrics, and economic history.

The centre's costs are put at £175,000 a year, with funding for the next five years pledged by the Social Sciences Research Council, which is to give £300,000 over the period, the Leverhulme Trust, the Esmeé Fairbairn trust, the Rockefeller Foundation, the Bank of England, the Financial Times, and Morgan Grenfell.

The director of the Centre for Economic Policy Research is to be Professor Richard Portes, professor of economics at Birkbeck College, London, who was behind the original plan. Professor Portes, an American who has taught in Britain since 1965, will continue teaching at Birkbeck.

"The impact and involvement of international trade and capital flows on the British economy has increased substantially since the last war", he said. But there has not been a corresponding increase in the research done on the operation of the open economy. This will be the task of the centre.

Professor Portes is also keen to see the "leadership of the economics profession," which has tended to rest in America since 1945 with people like Arrow, Tobin, Samuelson, Friedman, Modigliani, Leontieff, and Klein, return to Britain with its traditions from Adam Smith to Keynes.

The board of governors for the centre includes Sir Douglas Warr, former head of the Treasury, Professor James Meade, Mr Jim Ball, head of the London Business School, Professor Amartya Sen, Mr Michael Posner, chairman of the SSRC, Mr David Watt, director of the Royal Institute of International Affairs, and Mr Jeremy Harvie, deputy chairman of the Monopolies Commission.

The centre will be based near St James' Square in central London, in premises adjoining Chatham House. It will share a library and meeting rooms with the Royal Institute of International Affairs and they will promote joint activities.

The centre will aim to bring policy-makers and researchers together in workshops and conferences, publish a series of policy papers, promote scale "targeted" research and encourage collaboration between academics. About a dozen research associates are being appointed for each programme for limited but renewable periods, probably a three-year term. They will work in the centre while continuing at their academic base. There would be some international associates, and about one third would be under 35.

The centre would aim to complement existing in-house research institutes such as the Policy Studies Institute and the National Institute for Economic and Social Research, drawing in new funds in the form of grants from Whitehall and international sources, and new ideas from the existing academic community.

There is general agreement that Britain lacks research looking specifically at international economic aspects, while exports and imports make up a third of its national product. Government boasts five independent research institutes, largely government-backed, while Sweden and France also have economic institutes.



MAKING HAY: Essex has proved that fewer cuts are good for universities this year. Campus parkland grass is now allowed to grow freely after years of regular mowing. And the resulting hay crop is gathered and sold at a profit.

UCCA reports fierce battle for places

The scramble for places in higher education, which begins in earnest next week with the publication of A level results, will be even more competitive than last year when record numbers of applications were received.

Both the universities and public sector institutions reported further increases in applications this week. And they warned that there may be fewer places on offer.

The Universities Central Council on Admissions has had an increase of 0.5 per cent in applications, thanks to a recovery in demand from overseas on top of a slight rise in last year's 154,000 home figure. UCCA forecasts a 1 per cent drop in the number of enrolments from last year's figure of 78,600 as the institutions fall in line with University Grants Committee targets.

Offers have generally been tougher

this year to provide more flexibility for admissions tutors, who had to insist on exact grades to meet numbers targets for 1982/83. The result may be more places available through clearing, although some universities will again have only minimal numbers of vacancies on a strictly limited range of courses.

The polytechnics, too, report greater pressure on places. Applications were well up in the early part of the year and most will be trying to keep a tight rein on numbers so as not to stir up trouble with the likelihood of cuts in budgets for 1984/85 arising from the National Advisory Body's planning exercise.

In teacher training the picture is more patchy. The majority of places for secondary postgraduate certificate of education courses this autumn have

been filled, but there are still many vacancies on BED courses.

The figures, which are updated daily, show that English courses are totally filled, but there were still places this week in 20 university departments, polytechnics and colleges for maths and in 11 for physics. However, these are only open to candidates who have studied the subject as a major part of their degree.

A few places also remained in craft, design and technology and religious education at seven institutions and in home economics at five institutions.

Applications to PGCE courses were marginally down this year, 18,250 as opposed to 18,791 at the same time last year but this is mainly due to institutions filling their places so early. Applications for 1984 are expected to be high.

THES scholarship value increased

The value of the THES Third World Fellowship, which facilitates academic exchanges between developing countries, is to be increased by £1,000 to £2,500.

Ten lecturers and university administrators have benefited from the award, which was established at the Commonwealth Universities Congress of 1973. It has enabled them to travel to other Third World nations to carry out studies of benefit to their own countries.

Dr Isaac Abayomi, a senior lecturer in community health and nutrition at the University of Ife, Nigeria, will be the first recipient of the higher scholarship. He was selected from 21 applicants to travel to Sri Lanka to

study the organization of health services and to liaise with Sri Lankan universities to assess the input of medical schools in the health services.

His visit is likely to take place before the end of the year, although the political situation in Sri Lanka has delayed decisions on a timetable.

The Fellowship is administered by the Association of Commonwealth Universities, which receives a report of the recipients' activities. The ACU will soon study the report of last year's THES fellow, Mrs Manana Tuono, a lecturer in economics at the National University of Lesotho, who carried out comparative studies in other African countries of the effects of the migration of male labour to South Africa.

Thatcher at high tech seminar

by Jon Turney
Science Correspondent

Academics with ideas for exploiting high technology will be able to put them directly to the Prime Minister at a special seminar next month.

Mrs Thatcher will give the opening address at a one-day meeting at Lancaster House on September 12 and will spend the day hearing speakers discuss how to turn Britain's scientific prowess into industrial wealth.

There will be around 50 invited academics in the audience of 200 as well as two or three academic speakers. The City, Government departments, research councils, learned societies and industry will also be represented and Mrs Thatcher's presence will ensure that all the leading figures in the field attend.

The meeting will be the culmination of the Prime Minister's often expressed interest in science policy and problems of technology transfer. Her personal concern has already led to a number of initiatives including the recent Advisory Council for Applied Research and Development report on links between higher education and industry.

The Government's response to the ACARD will not be given until later in the autumn, but a Department of

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Lecturers urged to polish up their styles of address

by John O'Leary

Unlike good white lecturers do not improve with age, according to a study carried out at Loughborough and Nottingham universities.

Staff development experts analysed the responses of 258 academics at the two universities to 60 questions on how they prepared, structured and presented information in their lectures. The survey is claimed to be the first empirical study of lecturing styles.

Mr George Brown and Mr Mali Makhtar, of Nottingham's teaching methods unit, divided the lecturers into five categories:
● The oral presenter, who is fairly

confident, rarely uses any means of communication other than talk and tends to work from a script.

● The exemplary performer, the largest group, who lectures from brief notes, thinks about and writes down objectives and generally adopts accepted good practice.

● The visual information giver, who provides full notes on a blackboard or overhead projector and tends to write down the whole lecture.

● The amorphous talker, who is "unusually confident but not particularly adept at structuring or presenting lectures" and is said to be the most likely of all the types to pretend to know the

answer to a question when they do not.
● The eclectic lecturer, who is least confident about lecturing and ability to achieve objectives. They try to prepare carefully but have difficulty in selecting and structuring their material.

It emerged that different subject areas carried their own lecturing styles, with scientists and engineers being predominantly "visual or amorphous", the humanities and biomedical sciences boasting the most exemplary performers and the social sciences scoring high in the oral sector.

But, apart from a suggestion that professors and senior lecturers were marginally more exemplary in their

lecturing style (which the authors warn could mean that they know the "correct" responses to the questionnaire), there appears to be little improvement according to experience.

The authors concede that it is possible that some professors and senior lecturers have a deeper understanding of their subject and they wonder if other pressures may be responsible for a greater proportion of eclectics than in the junior ranks.

"On the other hand," they say, "it may be that self-doubt, a key constituent of the eclectic style, is sometimes a product of deeper knowledge of a subject and the process of teaching."

Chemistry loses one in ten staff

by Jon Turney
Science Correspondent

Few teaching staff, less time for research and diluted technical support are the main results of the university cuts in chemistry departments across the country.

Many departments face further staff losses which could amount to 10 per cent by next year, according to a new survey by the Committee of Heads of University Chemistry Departments.

Among teaching staff, the survey found that the 5-10 per cent cut projected for next year came on top of an average 10 per cent reduction in staff numbers over the last four years. This has left chemistry with the highest age peak among lecturers of any important science subject. The report says this will be the worst problem of the next 10 years, with newcomers to the discipline trapped on short-term research contracts.

The committee found that a post-doctoral fellow had only a very slim chance of a permanent university post and their report suggests that some of the most able young chemists are obtaining posts overseas and are likely to be lost from the British system altogether.

The survey, based on returns from 43 university departments, also found that technical and clerical staff numbers had been cut by 10 per cent or more. The committee regards technical staff as a special problem, as their absence makes research harder to

sustain. It complains that universities cannot compete with industry and commerce for the highly-skilled technicians their departments now need.

Professor David King of Liverpool University explained that university salary scales were 20-25 per cent below industrial rates. "We take on young technicians and train them, but if they're any good they move on to firms outside", he said. He pointed out that the growing fashion for university science parks could make this problem worse.

Still other aspects of the cuts reinforce their impact on research, the report argues. The University Grants Committee equipment grant has declined significantly and departmental grants to chemistry departments have also gone down by more than 20 per cent since 1979.

The chemists set their faces squarely against suggestions that some universities might become mainly teaching institutions. "It is unacceptable that any British university should not have a chemistry department that is active both in teaching and research", the report says. It also defends the role of small departments within the system.

The committee stresses that more fundamental chemical research is carried out in the universities in Britain than in other industrialized countries, which tend to have separate research institutes. It says the current decline in university chemistry should be halted for the sake of the chemical industry.

News in brief

AUT steps up equality campaign

Up to date information on the steps already taken by universities to open up access for ethnic minorities, women and working class students is being sought by the Association of University Teachers.

The union this month wrote to all academic registrars seeking their cooperation in supplying information which will aid its campaign for wider availability of university education. In particular it is asking for details of admissions policies on racial minorities, people with handicaps, women and girls, mature students and applicants from poor educational backgrounds or with few formal academic qualifications.

Additionally it wants to hear of short courses or events designed to bring girls into science education and retired people into University of the Third Age initiatives. When the information is received it will form the basis of pressing the union's local branches to tackle their universities individually.

Second chance

The Wolfson Foundation is to continue its industrial research fellowship scheme for a second year. The foundation has made 14 awards under this scheme, which pays for an unemployed scientist or engineer to follow-up a commercial idea in a suitable laboratory, usually in a university. These awards were chosen from around 40 applications and the Fellowship of Engineering, which runs the scheme, will receive up to £750,000 for a second round of awards in 1983/84.

IBM choice

Mr Edwin Nixon, chairman and chief executive of IBM UK Ltd is to be chairman of the Joint Board for Vocational Education, established to run the new certificate of the same name which becomes available in schools and colleges from September. The board will set up earlier this year by the City and Guilds and the Business and Technician Education Council.

Curtain call

Westfield College, London, has taken the 30,000 volume British Library's Play Set Ending Library of British Theatres. The collection, which will be available to the public but will also be used by the college's own students, including those on the first MA in drama, which starts in October.

School plans name change

A Buckingham business school which upset the University of Buckingham at its launch in April is planning to change its UK trading name.

The Council of UMBC, the Management Centre from Buckingham, will be considering at its September meeting a proposal that its trading name should be changed to the International Management Centre from Buckingham (IMCB).

The centre's principal, Professor Gordon Wills, said in anticipation of the council's decision that the change of name would reflect the "rapidly developing international role" of the school overseas.

The modification of the centre's title, however, should smooth a disagreement which has been simmering since the start of the year between the University of Buckingham and the business school.

The school went ahead and publicized itself as UMBC while discussions were still in hand about establishing formal links between them. In January the university's senate, however, decided against any formal links.

By that time although the business school literature did not spell out any direct connection, the use of the initials and the presence of several university staff including Professor Peter Watson on the school's academic board and a council gave the clear impression that there were closer ties.

The university threatened legal action at one stage while discussions continued between them while Professor Alan Pearson, the university's vice-chancellor, denied any links between the two bodies.

Fifth economist confirmed as sixth chairman of SSRC

Professor Sir Douglas Hague, since 1979 an economic adviser to Mrs Thatcher, has been confirmed as chairman of the Social Science Research Council, underlining the strong "economic" image developing at the council.

Sir Douglas, whose appointment was announced this week, will be the fifth economist out of six chairmen of the council, which is shortly to change its name to the Economic and Social Research Council (ESRC). Lord Young, the first chairman, was a sociologist.

He will now have for a period of four years to lead the council's research programme, which has been set up by the Department of Education and Science. The council's research programme will be set up by the Department of Education and Science. The council's research programme will be set up by the Department of Education and Science.

Ban on women stops chaplain swop

by Olga Wojtas

An exchange programme between higher education chaplains in the Church of England and Episcopal chaplains in the United States has fallen through because of the church's refusal to recognize ordained women chaplains.

Reverend Kennedy Thom, secretary for the Church of England's Chaplaincy in Higher Education said the president of the Episcopal Society for Ministry in Higher Education in America had been delighted by the prospect of chaplaincy exchanges proposed by the Chaplaincy Advisory Group.

"However," he went on to say, his society would need assurances that the ministry of all their members was acceptable in the Church of England and he was clearly referring to the fact that they have a number of women chaplains and a number of men who are divorced.

Since the Church of England does not at present allow women to officiate, the full exchange where chaplains took over one another's posts for a term of a year could not begin.

"We couldn't possibly say send the men but not the women," said Reverend Thom. He added that it was "extremely anomalous that people validly ordained in other provinces of the Anglican communion could not officiate here. However, it was hoped to initiate study visits of three or four weeks, where the chaplains came as guests and did not have to officiate."

Last November Deaconess Diana McClatchey put a motion before the Church's General Synod that women ordained in other branches of the Anglican Church should be able to officiate in this country. The Synod's standing committee is to set up the necessary legislation but this could take three or four years.



A visitor to Christie's Inaugural graduate art show examines a ceramic sculpture by Caroline Ward, of the Royal Academy schools, as Lord Gower, minister for the arts (centre), discusses the exhibition in the background. The show, which runs until August 26, is being held for the second time and features work from seven colleges. Last year two thirds of the 250 exhibits were sold, raising £5,500.

YTS hair salon guilty of fraud

The owners of a hairdressing salon accepted by the Manpower Services Commission to run courses under the Youth Training Scheme have been found guilty of fraud and breach of contract with six former students.

Sheriff Philip Caplan described the course at the Sacha Academy of Hair and Beauty in Edinburgh, run by Mrs Janice Campbell and her husband Evan as a "shambles".

They had failed to provide a reasonably efficient and effective training course, and he ordered them to return a total of £3,600 paid in fees by the six young women for an intensive six-months training course, and to pay expenses.

Mr Bill Drummond, the Manpower Services Commission's area training manager for Lothian and the Borders, said 10 young people had already begun a course at the academy and so far there had been no complaints.

"We looked at the type of course being offered, and it satisfied our officers. I must emphasize that we are interested in a broad-based course which will develop youngsters' skills across a broad range of shop, office, reception and retail, not just on the narrow hairdressing front. But we will be monitoring things very closely as we intend doing with all YTS schemes."

However, Sheriff Caplan said in his written judgment that he found Mrs Campbell "exceptionally glib and manipulative, inclined to say anything which is designed to achieve the effect she immediately desires."

To a young or unworthy person she could appear exceptionally persuasive. While any training course could have its temporary setbacks, Sacha's suffered from a total lack of preparation and planning. The Campbell had no previous experience of running a hairdressing school, and Mrs Campbell was not a practical hairdresser.

There was a systematic course of conduct designed to mislead entrants to the academy into thinking it had an established and successful record, said Sheriff Caplan. Some of Mrs Campbell's talents were illustrated by the academy's brochures, in some respects a masterpiece of equivocation.

Within a few weeks, it was clear to the six young women that the course was disorganized, the teaching staff either inadequate or under too much pressure to supervise properly, and that there was insufficient opportunity for practical work.

The FEU is planning to continue funding specific projects in multicultural education and has established a working group of experienced people to assist and advise on future work.

Correction

In the architecture section of last week's *THE* "peer review" survey the points ascribed to Oxford Polytechnic, giving the polytechnic a score of five points in each of the "research" rank and "teaching" rank tables. Replies to the survey did not distinguish between the institution.

Thatcher at high tech seminar

continued from front page

Industry scheme for grants to universities and polytechnics to reinforce links with industry may well be ready for launch by September 12.

Downing Street has emphasized however that the meeting will cover broader themes than academic-industry transfer of ideas.

The debate will also look at the relations between pure and applied research backed by industry and government, the City's attitude to new technology investments, industry's ability to promote and market new products and the Department of Trade and Industry's role in encouraging take-up of new ideas in industry.

Father claims college broke entrance rule

by Paul Flather

A Liverpool businessman is preparing to take legal action against a Cambridge college on the grounds that it broke the rules when dealing with his son's application to be admitted as an undergraduate.

Mr Howell Bolton-Jones is accusing Robinson College of bringing "discredit" upon itself and Cambridge by failing to put his son's application into the intercollegiate "pool" from where it might have been accepted by another college.

Mr Bolton-Jones' son, now 19, applied to read French and German at Robinson last year. After taking the special entrance examination and an interview at college, Robinson reserved a final decision over Christmas, before rejecting the application in January. The son is now set to read modern languages at Bristol University.

Make bigger changes, MSC told

by Felicity Jones

The Manpower Services Commission must not flinch from taking important initiatives in adult training rather than "tinkering" with existing arrangements, according to the TUC.

The size of the challenge is immense the TUC says in response to the MSC's policy document, *Towards an Adult Training Strategy*. It says the recession has hit unskilled and skilled workers disproportionately and a new approach is needed to equip the casualties and potential casualties of occupational and technological changes.

The TUC acknowledges concern that the MSC's move to establishing a training system for adults will preempt the higher education sector's efforts. It wants the MSC to set up a high-level tripartite task group to examine the issues needed to achieve a "breakthrough" in adult training.

"The TUC's main concern is that too little will be done. The prospect is not a major MSC initiative but rather a tinkering with the existing arrangements - particularly as considerable resources will be needed," it says.

It considers the present system is very fragmented. Unnecessarily restrictive course entry requirements fail to take account of adult experience and unrealistic and inflexible course programmes, with the bias towards full-time study, do not meet the needs of most adults, the TUC claims.

The MSC's Open Tech should be extended and additional funding sought to open up discussions with examining bodies and institutions to develop a more modular framework of course provision such as part-time and "open" courses using distance learning.

The TUC points to the Open Tech's success in encouraging developments like these in some technician and supervisory courses.

It also recommends that the MSC should establish a national unit to coordinate - in-house company training for all adults.

Where there's a wool...

Staff at the Scottish College of Textiles in Glasgow are helping a Falkland Islands couple to set up a woolen mill, the island's first industrial development project.

Richard and Grizelda Cockwell have just completed a specially designed course at the college in the manufacture of woollen knitwear. Until now, the islanders have simply been exporting fleeces wool, whose quality is between lambswool and Shetland.

Dr Kay Harwood, head of the college's technology department, said: "It produces excellent wool yarn. It is very white and lustrous, and doesn't need bleaching to produce a very good white sweater."

The mill in Fox Bay is expected to go into operation in April.

college representatives committee, and even the vice-chancellor, Professor Harry Hinsley.

"For Oxford and Cambridge you have really got to pull out all the stops to get in. You have to be of exceptional ability. Yet you are like a babe in their arms. They can drop you - and here they have," he said.

Mr Bolton-Jones believes the great traditions of the university have been betrayed whatever the merits of his son's case which he accepts cannot be affected now. However he is considering an appeal to the Ombudsman, and seeking a legal declaration that his son was unlawfully excluded, which could lead to damages. Mr Bolton-Jones could also appeal to the college Visitor, Prince Philip, who is the university chancellor.

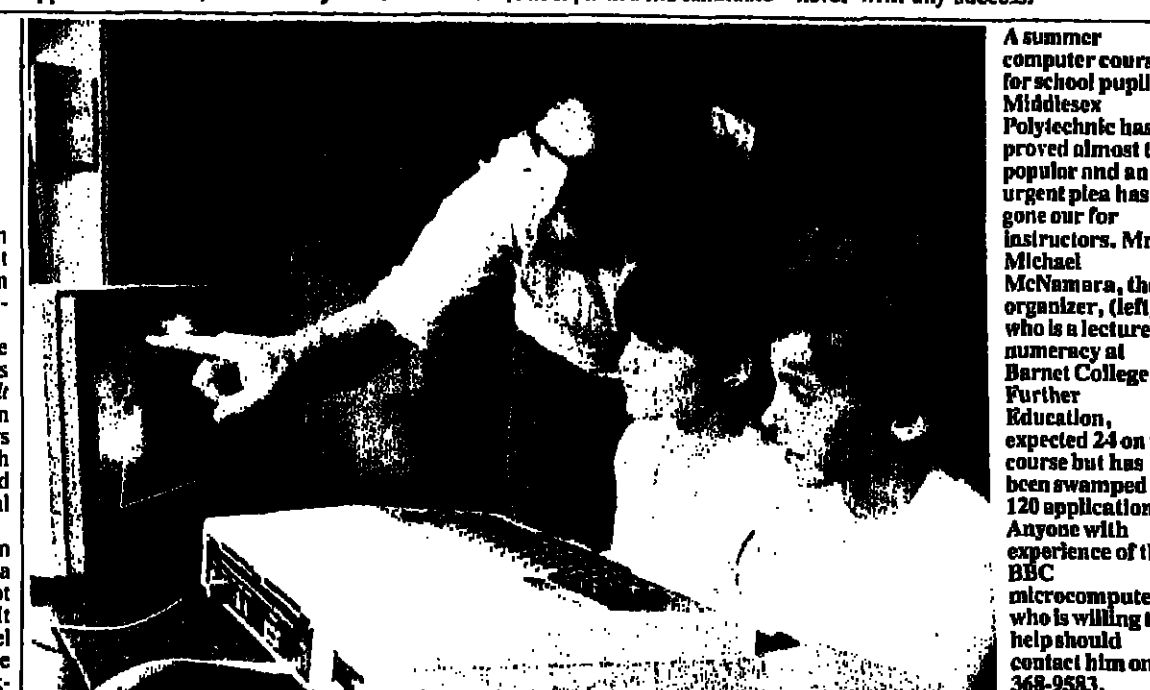
Dr C. P. Hughes, the senior tutor at Robinson, has explained the candidate

did not in fact merit inclusion in the "pool". None of the college's pooled candidates were taken up by other colleges, although Robinson itself took a quite few from the pool.

The case however does highlight some of the complexities surrounding Oxbridge entrance. Reforms under discussion at Oxford could mean all candidates being "pooled" unless they insist on a college preference. Robinson is Cambridge's youngest college, admitting its first undergraduates in 1979.

A university official said about half a dozen grievances over student admissions were raised with the vice-chancellor each year. But it is now known of a similar case where "procedures" were broken. Graduate students denied a PhD have sometimes tried to take the university to court, but never with any success.

Dr C. P. Hughes, the senior tutor at Robinson, has explained the candidate



A summer computer course for school pupils at Middlesex Polytechnic has proved almost too popular and an urgent plea has gone out for instructors. Mr Michael McNamara, the organizer, (left), who is a lecturer in numeracy at Barnet College of Further Education, expected 24 on the course but has been swamped by 120 applications. Anyone with experience of the BBC microcomputer who is willing to help should contact him on 01-368-9583.

Young people prepared to fit the mould

Young people are prepared to tailor their further education and training to fit potential employers' preferences and needs, says a survey published this week.

Alan Gordon, a research fellow at the University of Sussex's Institute of Manpower Studies, has published his findings in the journal *Education Studies*. He analyses the attitudes of employers to the recruitment of graduates and suggests that young people do welcome and respond to signals from the labour market.

When asked about graduate recruits, a surprising 66 per cent of employers felt that graduates were more productive workers. In a more extensive and detailed questionnaire about the advantages of employing graduates over other recruits, applied science graduates came top of the scores with a high rating for "relevant knowledge".

For "ability to communicate", arts graduates were deemed to be best, although they scored badly on enthusiasm, ability to absorb information and "relevant knowledge". Social scientists scored badly for "original thought" but well for ability to communicate, critical facility and overall ability. In general, social science graduates seemed least attractive to prospective employers, scoring a full 18 points less than applied scientists.

On the negative side, employers felt that pure science graduates were too "academic", social scientists too "egotistic" and applied scientists too "immature".

It is too late for this year's graduates to worry about it, but employers appear to prefer an upper second, ideally from Oxbridge or one of the old civic universities, though some employers hinted darkly at "bad experiences" - unspecified - with Oxbridge graduates.

Final conclusions suggested that employers still regard educational attainment as secondary to personal suitability.

Educational Studies, Vol 9, no 1, ISSN 0305-3598, pp 45-68.

Warwick will be first to take OU students

The University of Warwick will be the first university to take Open University students on a credit transfer basis on to a full-time year's degree course.

Plenty of universities operate exchanges whereby their students can study OU courses but this will be the first time that OU students will take a year out to study full time at a university on a residential basis to gain credit towards their BA(Open) degree.

The collaboration between the OU and Warwick will operate as a pilot scheme for three years initially and both parties have agreed in principle to take the first intake of students onto the scheme in the 1984 academic year. The details still have to be ironed out between the two institutions.

The initiative was taken by Professor Author Marwick, the dean of the faculty of arts at the OU and Dr Gwyn Lewis, chairman of Warwick University's history department. Students will choose from 17 courses offered by the university's history department, in the first instance.

A small group of about 15 students will be involved in the trial having probably completed three years of study with the OU and their year at the university will provide the equivalent of two OU credits.

Dr John Horlock, the vice-chancellor of the Open University said that there would be two points of advantage to students as a result of the scheme.

He said that it would widen the profile of courses on offer to OU students by opening up the university's history courses to them. And secondly it would speed up the process of getting a degree and take the pressure off students who can find it difficult to gain two OU credits on a part-time basis.

The vice chancellors of the two institutions also plan to make a formal approach to the Department of Education and Science to get the award of mandatory grants for students going on the one year full-time courses at the university.

Further approaches to the principal and rector do not seem to have led to a solution, and staff now hope to put their case to the Physiological Society, due to hold a meeting at Edinburgh at the end of September.

Staff have been officially forbidden to talk to the media, and it is understood that when the BBC was filming the *Campus* series about the university, it was prevented from reporting the problems.

However, former staff confirm that morale in the department is very low. One said: "Professor Watson has a traditional concept of authority and there are confrontations that don't promote a climate of happiness. Six staff have left in the last three years, allegedly because of tension within the department."

A spokesman for Edinburgh's Association of University Teachers said: "We are extremely disturbed that the situation is apparently continuing and we will be seeking efforts to seek a solution to the problems of the department."

Women urged to get wise

by Jon Turney
Science Correspondent

The Engineering Council and the Equal Opportunities Commission are to join forces to promote 1984 as Women into Science and Engineering Year.

Their initiative will be designed to improve opportunities for women in science, technology and engineering and to publicize existing projects. The two organizations hope to attract industrial or commercial sponsors to back new projects as well as putting some of their own money into individual schemes.

Lady Platt, who took the chair of the Equal Opportunities Commission in May, is also a member of the Engineering Council, a qualified engineer and a member of the House of Lords Select Committee on Science and Technology. She is committed to involving both organizations, and will chair the WISE steering group.

For the Engineering Council, the failure of university engineering courses to attract more than 8 per cent of female undergraduate is a waste of potential talent, while the EOC sees under-representation of women on science and engineering courses as a significant barrier to equality of opportunity.

The two groups plan to send mailings to every secondary school. "The first problem is to get girls to study science until they are 16," according to Julia Watson of the Engineering Council. Only then will they ever consider going on to study engineering at A level and beyond.

The WISE campaign will be launched at a press conference in September, when a calendar of events for next year will be issued. They have also commissioned a study of the whole range of existing schemes from Loughborough University. This will help in selection of the projects staged out for special publicity.

The organizations have already had second thoughts about one vital feature of the scheme. The original title was Women and Girls into Engineering and Science, or WAGES. They decided that Women into Science and Engineering offered a happier acronym.

New turn in physiology row

Physiology staff at Edinburgh University hope to enlist the help of the Physiology Society of Great Britain in a bid to solve a long standing departmental conflict.

There has been considerable unrest over the running of the department for a number of years, with a majority of the staff calling for Professor William Watson to stand down as head of department a year ago. Professor Watson refused.

The dean of the medical faculty, who was asked to intervene, also refused saying it was an internal dispute which should be solved within the department.

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Two new members have been appointed to the Agricultural Research Council. They are Mr Brian Read, chairman of a Norfolk food merchant and Mr Peter Smith, managing director of a Wolverhampton

farming company, who is also a governor of the East Malling Research Station and the National Institute of Agricultural Engineering. Mr John Crox, a Norfolk farmer, has been reappointed.

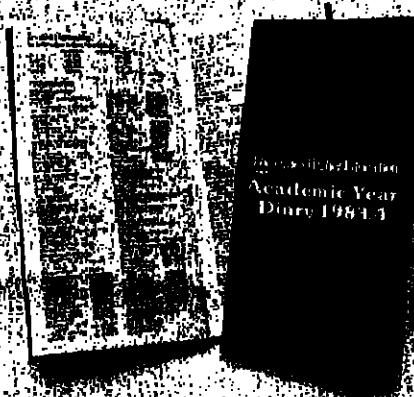
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Union fails in numbers game

by David Jobbins

A seat on the national negotiating machinery and their rival's brief flirtation with the Campaign for Nuclear Disarmament has failed to boost membership of the Association of Polytechnic Teachers.

The association's official return to the union certification officer shows that as of last December APT had 3,110 members in England, Wales and Northern Ireland, compared with 3,125 twelve months previously.

Although the fall is tiny (less than 0.5 per cent) it is the third successive year that the APT's membership has dropped. Union leaders could have hoped to pick up at least enough new members from the granting of a seat on the Burnham further education committee

to offset any fall because of premature retirements and other job losses. They could also have expected some spin-off from last year's decision by the annual conference of the National Association of Teachers in Further and Higher Education to affiliate to CND, reversed this year, but this effect was less certain.

APT leaders are clearly concerned at the decline, although they say the association's decision two months ago to start recruiting in higher education colleges outside the polytechnics is in response to demand and not an attempt to tap new sources for members.

But Natfhe claims that its polytechnic membership is actually rising - with 470 joining since September 1982 restoring the total to just 10

above its March 1981 level of 126. However, membership is not a figure the union has to lodge with the certification officer and it is very much an inexact calculation.

Natfhe officials say there have been no signs of a flood of local recruitment decisions in the APT's favour. One again they have questioned the contribution between the total of subscriptions paid and the number of members registered. Dividing the then subscription of £15 into the £33,541, the subscription income gives just 2,236 members, Natfhe argues.

The APT claims 296 members in Northern Ireland, at the Polytechnic, but the merger with the New University of Ulster will effectively remove that stronghold.

ILEA rapped over APT recognition

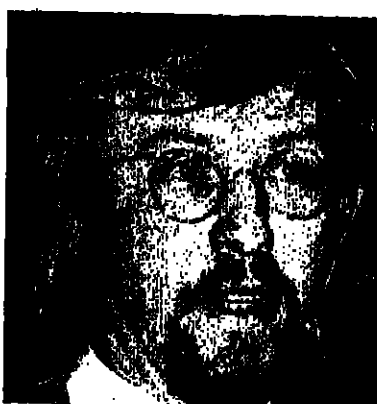
The local government ombudsman has delivered a sharp rap over the knuckles to the chairman of a powerful Inner London Education Authority committee for his terse response to a plea for recognition from the Association of Polytechnic Teachers.

Mr Neil Fletcher, chairman of the further and higher education subcommittee, last year bluntly refused to consider recognition of the APT as a union representing staff at the inner London polytechnics.

APT complained when Mr Fletcher, without consulting his committee, told them: "The ILEA has no intention of recognizing the APT either now or in the future... I would advise any members of staff contemplating joining your organization seriously to consider whether their interests can be protected or represented in any significant way by membership of such a misbegotten and unrepresentative association as yours."

The Commissioner for Local Administration in England, Mr D. C. M. Yardley said in his report upholding the APT's complaint of maladministration by ILEA causing injustice that the terms of the letters were "offensive" and prejudged the issue.

When the recognition question in the light of the APT's new seat on the



Mr Neil Fletcher refused to consider recognition

Burnham further education committee was considered by Mr Fletcher's committee, it would have been difficult not to turn down the request because of the public nature of his comments, Mr Yardley found.

The ombudsman said that he felt the injustice could be remedied by an apology from the chairman of ILEA, Mr Gerry Ross, and not from Mr Fletcher. All ILEA would say is that the report would be considered in the next round of meetings in September. The report cleared Mr John Bevan,

then deputy controller of ILEA as another senior officer of alleged maladministration. The APT he claimed that the two gave misleading advice to the courts of the Polytechnic of North and Central London on a recognition issue. But the ombudsman did uphold a complaint that the APT submission on 16 to 19 education London was not passed on to a review body, although he found it there was no injustice as the one which gave rise to the complaint was rectified.

The APT in London has recognition with its rival the National Association of Teachers in Further and Higher Education, at PNL, hopes high of an agreement at Thames. Discussions have reached stalemate PNL.

The position is complicated because ILEA is not the lecturers' employer; they are technically employed by polytechnic themselves. But the APT thought it should have recognition from ILEA so that it could take part in negotiations on pensions, superannuation, and conditions of service.

A new headache for ILEA is that APT is determined to secure recognition at a number of higher education colleges outside the polytechnic sector where ILEA is the employer.

Hamilton sale probe

There is to be a Commons investigation into the sale of the former Hamilton College of Education, claimed to have been sold by the Scottish Office to the lowest bidder.

The Commons public accounts committee has decided to mount a full investigation, following a preliminary inquiry into the sale by the comptroller and auditor general.

The college, used by the government in 1981, was sold for only £68,000, more than £1m less than it had cost to build 14 years previously.

The main college buildings were bought by an English company, Christian Schools, which will open a private school later this month. The Edinburgh firm, Miller Homes, bought the residences intending to convert them into luxury flats.

But two unsuccessful bidders, who made offers for the entire college complex, claim their bids were higher than those accepted.

At the time of the sale, local MP Mr George Robertson, condemned it as "political incompetence compounded by malice".

The public accounts committee will begin its investigation on November 16.

High-energy machine updated to get ahead of the field

by Jon Turney
Science Correspondent

The Science and Engineering Research Council has approved a three-year programme to upgrade the synchrotron radiation source at its Daresbury laboratory, which is widely used by researchers. The £850,000 programme will keep the Daresbury machine on a par with competitive machines now running overseas.

Although the SERC is under heavy financial pressure, it is anxious to maintain the position of the synchrotron source, which was the first machine of its kind in the world. The cost will be spread over the next three years and part of the money will be covered by savings when the machine is closed down for six months in 1985 for installation of new magnets. The Medical Research Council has an agreement for a joint experimental programme on it and will contribute to the cost.

Use of synchrotron radiation is a spin-off from earlier work in high-energy physics. Circular accelerators, which push charged particles up to high speed through magnetic fields, generate very intense X-ray and ultra-violet radiation. Formerly, this was a by-product of machines designed for particle physics experiments but the Daresbury machine was the first synchrotron designed specifically as a radiation source.

The radiation produced is used in studies as diverse as protein crystallography, materials science, surface chemistry and silicon chip technology. In all these fields the intensity of radiation offers sharper images a shorter exposure times than conventional sources.

Demand for time on the machine from outside researchers has been high that a large backlog built up. Set at Daresbury hope this will be cleared before the modifications are made and plan to run the machine 24 hours a day by the end of the year.

Since it was commissioned, similar machines have been built in Australia, Germany and Japan. The SERC plan to increase the intensity of the radiation beam from the Daresbury machine by tighter magnetic focusing. This will ensure UK researchers have access to a world-class facility

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Commission draws up new craft offensive

A major investigation of recruitment to craft design and technology teacher training courses is being launched by the Equal Opportunities Commission next month.

The investigation is to be undertaken by the commission's chairman, Baroness Platt, and its commissioner, Michael Fuller who are to seek the cooperation of teacher training institutions when preparing recommendations.

The commission says that at present there is no evidence of direct discrimination against female applicants. It is, however, concerned about the low proportion of women on CDT courses.

and called for positive steps to increase their number, as well as common courses in CDT for all girls and boys up to the age of 14.

The report was prepared by a special working party set up to discover why so few girls followed CDT courses at secondary level. In 1979, over 305,000 pupils took CSE and O level examinations in CDT subjects, and of these only 7,478 were girls, a mere 2.43 per cent of the total.

Amongst 40 proposals made in the report to improve the current position are recommendations that teacher education departments should make special efforts to encourage women on to CDT courses.

It calls on institutions to review their present policies in the light of the following factors: what is the balance of female and male students following each CDT course and what is the balance of female and male CDT lecturing staff?

Of the women and men applying to places on courses, what proportion of each are interviewed and accepted?

Are there flexibility in the system to allow students who have taken up CDT in their last years at school to be offered places on the quality of their work? Are girls' institutions if they have considered design under section 47 of the Sex Discrimination Act 1975?



The three Sweet sisters created a unique record at University College, Cardiff, when they all graduated with first-class honours in the same year. Rosemary (left) took a BEd in textiles and design, Heather (centre) a BSc in physiology and Elizabeth (right) a BSc in plant science. All three enrolled in different years but finished together because of a transfer and different course lengths.

Consortium to take over planning exams

by Felicity Jones

A consortium of two polytechnic planning schools and the Open University is to take over the professional examinations of planners from the Royal Town Planning Institute over a phased period.

Three new distance learning courses will be started by the planning schools of Bristol and Leeds polytechnics in January 1985. These will replace the present RPTI examination for students who have studied at home.

A three month optional introductory course will also be available to those students who are new to degree level study or to planning.

After the preliminary polytechnic courses, students will study for five credits with the Open University from a selection of compulsory and optional courses. The complete package will be the equivalent of eight OU credits at the end of which students will be eligible to become chartered planners.

Consultation still has to take place but it is expected that the institute will give its formal approval by May 1984. It will mean that 1985 will be the last

Cambridge fills 60 vacant jobs

by Paul Flather

Cambridge has just advertised 12 vacant chairs at salaries of about £20,000 a year - another sign that the university's finances are back in harness after the recent harsh cuts.

Over the summer the university's general board has given permission for more than 60 vacancies to be filled and more are expected to be advertised at the start of the next academic year.

Dr Ian Nicol, secretary general of the faculties at Cambridge, put the revived financial health of the university down to three factors: prudent book-keeping, the retention of high overseas student numbers despite full-cost fees and a very successful early retirement scheme.

"It is obviously good news that we have met our planned cuts through prudent book-keeping," he said. "But of course we are now operating at a lower level. For once the University Grants Committee has fulfilled its promises and so we are able to plan to fill vacancies with confidence."

The university estimates its total academic establishment will be down by 40-50 posts at the end of the current cuts exercise next year. Dons have been asked to give their consent to the "suppression" of 43 university posts and three administrative posts. In all, there are about 1,250 dons at Cambridge.

The full list of posts to be abolished includes a university lectureship in the history faculty currently held by Professor Harry Hinsley, the vice-chancellor. Also included is the chair in history and the assistant lectureship in the English faculty formerly held by Dr Colin MacCabe, now a professor at Strathclyde University.

The council of the general board explains in the latest issue of the University Reporter that the posts are being suppressed for financial reasons to bring Cambridge back to "steady state" budgeting.

The board also assures departments they will not be penalized by the effects of the early retirement scheme. Almost 140 dons will have taken advantage of the scheme by 1984, a far higher than expected rate of success. Academics aged 60 or over who leave are paid usual rates to the normal retiring age of 67.

The 12 chairs now on offer are: the Kennedy professorship of Latin, the Laurence professorship of ancient philosophy, the professorship of English, the Elrington and Bosworth professorship of Anglo-Saxon, the Rouse Ball professorship of English law, the professorship of mechanics, the Cavendish professor of physics, all vacant since 1982; the Drapers professorship of geology, both vacant from October; the professorship of economics, the Goldsmiths' professorship of metallurgy, and the William Wye professorship of social anthropology, all vacant from next year. There are still more than half a dozen other Cambridge chairs empty or about to become vacant.

The university has also set up a series of trust funds to attract overseas students who are unable to pay the full fees and numbers have risen in the last year and board of governors.

Overseas news New union wins support with grants victory

The Polish Students' Association (ZSP), set up last November to attract former members of the banned Independent Students' Association (NZS) has frustrated an attempt by the ministry of science, higher education and technology to reduce student grants.

Officially the reduction, planned for October 1, has only been postponed. Opposition from the ZSP came, however, as a considerable surprise to the ministry.

The grants system was established by the Higher Education Act of 1982. From the beginning, many students were suspicious of the grants system, which, they felt, could be used as a means of disciplining students who failed to show the proper political rectitude. In the event, however, students from poor and disadvantaged families were only too pleased to take advantage of the grants.

Under the 1982 Act, changes in the level of grant can only be made with the agreement of the ministry of finance and the supreme bodies of "national student organizations". When the act came into force last September, this meant the party-linked Socialist Polish Students' Association (SZSP), since the NZS had been outlawed in January 1982.

Savary announces boost for technology institutes

from Guy Neave

Over the next six years high priority is to be given to expanding France's two-year University Institutes of technology. This development is to be implemented as part of the Ninth Plan, announced M. Alain Savary, the Minister of Education, at a recent meeting of the inter-ministry committee for regional planning.

The programme is to be carried out by the ministry of education in cooperation with the national and regional planning delegation (DATAR). Student numbers in the university institutes of technology are to grow by some 6,000. At present there are about 73,000 students in this sector.

Particular emphasis is to be placed on the development of high technology and improvements in business management techniques. Some 30 new departments will be set up. Among the existing departments which will see a heavy injection of new staff and resources are electronics, biotechnology, production control, heating engineering and management.

The government has been careful to ensure a wide regional distribution of these new resources and the new strategy links in with the long and often expensive task of associating higher education institutions more closely with their immediate community.

Among establishments which will receive immediate benefit from the government's plan are Bayonne in the south west, Calais and Orleans where

the computer science departments will be strengthened. At Rouen and Nancy electrical engineering is to be given a further boost.

This response is a direct offshoot of a speech made by President Mitterand. In April, the president gave the go-ahead for doubling the number of places available in the high technology area of the university institutes.

It remains to be seen whether the institutes will draw sufficient numbers of students. Unlike the universities, they are highly selective. In addition to holding their *baccalauréat*, students have also to submit a record of their last two years in school.

The drop-out rate at the two-year institutes is far lower than at the universities, but successive governments since 1966 have been bothered by the reluctance of students to apply in the numbers called for.

Far more discouraging is the fact that the higher technicians' sections - the post-secondary classes attached to some 623 technical *lycées* - have flourished over the past five years. Ironically, the planners saw the university institutes of technology as replacements for the higher technicians' sections.

During the year 1981/82 the number of entrants to the higher technicians' sections leapt by more than 10 per cent. Whether the availability of new places in the university institutes of technology will tempt school-leavers away from the technicians' sections is a matter of speculation.

Peace plan approved

A senate panel has approved legislation to establish the US Peace Academy, after being assured that the school would not compete with existing institutions or become a site to launch criticism of US foreign policy.

The Bill would authorize the expenditure of \$7.5m for leasing and renovating a campus, yet to be determined, and \$16m for operations during 1984 and 1985.

A quarter of the academy's annual government appropriations would be parcelled out to grants and contracts at other colleges and universities to emphasize its complementary role, according to amendments.

The senate labour and human resources committee also amended the Bill to add the secretary of defence, the secretary of state, the director of the arms and disarmament activities, as the chief of the National Defense University to the new academy's 15-member board of governors.

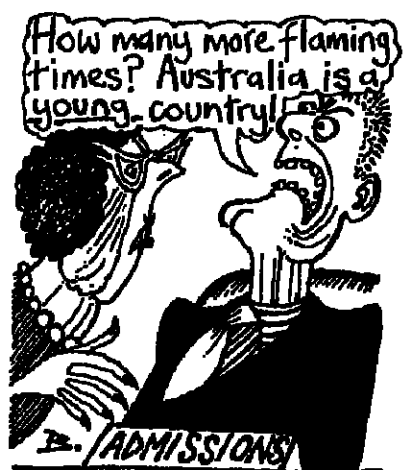
Minority aid backfires

Affirmative action has backfired, says a new study by Duke University, North Carolina, resulting in a decline in teacher quality because the best women and black candidates are attracted to better paying jobs in other fields.

The study, published in the July issue of the journal *Educational Researcher* culled data from a survey of 58,270 secondary students at 1,015 American schools in 1980. Researchers with Mr Ellis Page, professor of educational psychology and research at Duke and former president of the American Educational Research Association focused on 688 graduating students who said they planned to become teachers and 10,411 others who looked forward to careers in other areas.

"Now it appears that affirmative action, while creating opportunities for women and minorities, may drain off some teaching talent to professions with higher rewards," said Mr. Page.

The mature student who hardly stood a ghost's chance



from Geoff Maslen MELBOURNE

A phantom Tasmanian adult has been used to test the willingness of Australia's higher education institutions to accept older students. But most of the institutions failed the test. Indeed, the wonder is not that there are so many mature students in Australian colleges and universities, but that there are any at all.

More than one in seven of the institutions surveyed did not bother to reply to an inquiry regarding enrolment from a fictitious adult Tasmanian who supposedly was a prospective student. Others took up to 11 weeks to respond and even then many of the replies were distinctly discouraging.

A privately run agricultural college in Geelong brought glory to Victoria by topping the national list with a "willingness" score of 95 per cent. Unfortunately, La Trobe University in the same state was down the bottom with a zero for not responding at all and Monash University got only 20 out of 100 because it took 72 days to send off a curt note.

Only 18 of the 39 institutions which did reply passed the test.

The survey was conducted by the North West Council for Community Education in Burnie, Tasmania. A letter of inquiry was sent to 46 universities and colleges from an imaginary adult with a not quite successful record in mathematics and science in final year

examinations at secondary school level, but several years' work experience in the field of finance.

The prospective student indicated he was moving to the area of the institution early in 1983 and wished to inquire as to his eligibility to study there.

All the letters were sent on the same date early this year and were virtually identical in wording. The returns were scored out of 100, based on three different aspects: time to reply; tone of reply; and the amount of information given.

Up to six days' reply time was set aside to allow for the vagaries of Australia's post. But distance did not seem to be a factor since the first letter back came from the Darling Downs

Institute of Advanced Education in Queensland, while the University of Tasmania had not responded after 11 days. The director of the north-west council, Dr Mike Walker, said his son's first encounter with the bureaucracy always left a lasting impression and the way some institutions reacted to inquiries was enough to drive an undecided adult from enrolling.

"Satisfying the deceptively easy needs of a potential student obviously taxes the administration of some institutions in this country," Dr Walker said. While federal and state governments were exhorting students and adults to enter higher education, the system seemed designed to make this as difficult as possible.

Indian medical watchdog to get more teeth

from A. S. Abraham BOMBAY

The Indian Medical Council is apprehensive about an imminent move by the federal health ministry to increase its influence over the council through the nomination by the ministry of the IMC president. At present, the president is elected by IMC members.

The proposal for nominating the president is part of an ordinance broadly aimed at giving the IMC greater powers to monitor the growth and standards of medical education. The ordinance has been drafted by the health ministry in consultation with the law ministry. It will be replaced by legislation in parliament within six months of its promulgation.

The health ministry seems to feel that since, under the new dispensation, the IMC will be given more teeth, it should surrender part of its autonomy as the price. IMC sources say the price is too high.

The IMC will be empowered to stop the proliferation of new, sub-standard colleges as well as to ensure that those in existence do not fall below a minimum level of performance. No college will be able to start functioning without its consent. At present, its role is confined to ensuring that those about to graduate have acquired the basic medical knowledge and skills.

It will also be authorized to recognize individual medical colleges, a power now in the hands of the affiliating university. Any new course will also need the IMC's sanction before it can be introduced.

A major and potentially controversial provision in the ordinance is that empowering the council to fix the fees that any medical college can charge anywhere in the country. This is aimed at ending the levy of extortionate capitation fees by private medical and engineering colleges.

Until now, abolishing this (mal) practice has been left to the provincial governments, with New Delhi confining itself to persuading them to do so. While most states have been loath to take action, two southern states, Karnataka and Andhra Pradesh, both ruled by parties opposed to Mrs Indira Gandhi's Congress (I), which is in power in New Delhi, have recently gone ahead.

Andhra Pradesh has fixed the fees, these colleges can charge and, after reserving one-fifth of the total number of seats for Untouchables, tribes and "backward classes" (castes held to be economically vulnerable), has stipulated that the remaining 80 per cent must be filled strictly according to rank.

In Karnataka, the picture is more complicated. The provincial government has fixed a uniform tuition fee and a variable 45 per cent of the seats in all the state medical colleges for "merit students", while allowing management a quota of their own, subject to a portion of this quota being reserved for students from the state. These students would have to pay a refundable deposit of about 23,000, a large sum of money.

But nothing has been done to ban capitation fees in the state's engineering colleges since they have gone to the supreme court challenging official fees. In the meantime, an attempt has been made to prohibit capitation fees in new institutions.

Province set to axe tenure

from Mark Gerson TORONTO

Tenure for college and university faculty could be abolished in British Columbia if the provincial legislature passes a series of government measures now before it.

The Public Sector Restraint Act, one of 26 bills tabled at last month's budget, removes job security throughout the government service and allows dismissals without cause or due process once current contracts expire. At the same time, programmes and agencies designed to protect human rights in the province are to be cut back or disbanded.

Four hundred civil servants have already been sacked, and the bill would simplify government plans to trim its direct and indirect payroll by 25 per cent over the next few years.

A second bill, the Public Service Labour Relations Act, would severely restrict the scope of contract discussions, leaving only wages and benefits subject to negotiation. Job security and working conditions would no longer be negotiable.

Universities are still studying the vaguely worded bills to determine their precise impact on operations. Nearly everyone agrees that the tenure and job security provisions apply to univer-

sities, but there is some question about the cabinet's right to order changes to curriculum and institutional structure. No such uncertainty exists at the province's community colleges and technical institutes, where board members could be fined up to £1,050 apiece for disobeying such cabinet directives.

"My goal is eventually to cut the cost of government," Prime Minister Bill Bennett said after a Social Credit Party was returned to power in the May 5 provincial election. His July budget gives universities no increase in operating funds for 1983/84 and reduces spending on student aid.

According to the Canadian Association of University Teachers, the government's restraint package is "a smokescreen" for "a most ferocious attack" on civil rights. It places public servants and teachers "at the mercy of gossip, vendetta and political malice."

University presidents in British Columbia have also reacted strongly to the legislation, which they see as an unwarranted attack on university autonomy and academic freedom.

Because it allows the government to intervene in the areas of freedom of speech and thought, the legislation is dangerous to a university and dangerous to the society universities serve," said George Ivany, acting president of Simon Fraser University, in a letter to

Universities Minister Patrick McGeer. George Pedersen, president of the University of British Columbia, worries about attracting and keeping good scholars and teachers "if we seem to be the only political jurisdiction in North America to have abolished tenure for faculty."

Telegrams of protest from around the world have expressed similar fears. Diana Warwick, general secretary of the Association of University Teachers in Britain, reminded Mr Bennett of the need for independent teaching and research that is "free from partisan political considerations." Abolishing tenure, said Irving Spitzberg, general secretary of the American Association of University Professors, would "put at risk the quality of your universities and weaken the safeguards of academic freedom that are essential to British Columbia and Canada."

Although prevented by provincial law from unionizing, faculty in the province are considering a solidarity committee created by the British Columbia Labour Movement to coordinate a massive public awareness campaign and legal and constitutional responses to the legislation.

Court challenges are already being discussed and are expected to use the bill's many technical loopholes, as well as sections of Canada's new Charter of Human Rights and Freedoms.

College's sale and lease-back scheme upsets tax critics

from E. Patrick McQuaid WASHINGTON

A scheme to sell the campus of a small New England college and then lease it back from private investors as a novel way out of its financial predicaments was denounced as a tax shelter by a legislative committee.

The bill addresses all colleges and tax-exempt organizations but the most frequently cited target of the measure is Bennington College, in Vermont. Bennington officials planned to sell the campus to a private investor and then lease it back from them while realizing a \$2m profit.

Under the House provisions, a college would be able to sell and lease back old buildings if the money was used for rehabilitating the properties. Similar legislation is pending in the Senate, where a special financial panel has heard testimony from a dozen higher education groups.

Mr Daniel Britton, the president of Kansas Wesleyan College, spoke on behalf of the American Council on Education, representing 11 other scholarly organizations. "Sales and lease-

backs of existing buildings should be curbed where the transaction serves no purpose other than the generation of tax savings shared in part with the institution," he said.

Mr Bratton did not refer specifically to the Bennington deal which is in abeyance - but commented that such arrangements "may produce additional dollars for the tax-exempt institution, but they do not directly further its productive function."

Bennington's president, Mr Michael Hooker, sees matters differently. "It is ironic," he told the Senate panel, "that a college could not benefit through reduced costs by selling its building to investors and leasing it back, but any business that owned its own building could so benefit." He admitted that the scheme "is a use of a tax loophole, and I am embarrassed to be doing it."

Bennington has accumulated a \$2.5m debt, an amount equal to its endowment. Its lease-back arrangement is a first for an American college but elsewhere, municipalities have benefited from similar "gimmicks" as Senator Howard Metzenbaum of Ohio calls them. The city of Baltimore sold and leased back a fire station and an incinerator and the city of Oakland, California, made a similar deal with its coliseum and public museum.

Greenland to get mini-university next year

from Annette Hopson COPENHAGEN

Greenland will open its first mini-university, to be called the Inuit Institute, in January. To begin with only 14 students will be admitted.

Greenland's director of education, Mr Augustas Moeller, said at a press conference in Copenhagen that the intention to offer the first Inuit Institute programme of two years' basic education in Nuuk (Godthab) in the south-west of Greenland. After two

years, the students will continue their studies at universities in Denmark.

The admission conditions will be the same as those in force to enter a university in Denmark, except that the students' mother tongue must be Greenlandic. The institute will be headed by professor Dr Bakomolag, Mr Robert Petersen.

Mr Moeller said: "At the beginning the education and research will concentrate on our cultural heritage, including our language, history and con-

temporary Greenland. Later on the education will include other subjects, but it has not yet been decided what they will consist of."

In the long run it is intended that the Inuit Institute will collaborate on a scientific basis with Eskimoes from the entire area of the northern polar circle, in Alaska and Canada.

When Greenland obtained home rule in 1979, the first sector to be handed over from Denmark was

Professional bid to reserve a seat



Jostling for reserved places on the TUC's general council: Diana Warwick (left), Alan Sapper and Bill Sirs

If Diana Warwick's attempt to win a seat on the TUC general council proves successful, it will be the most significant indicator yet of the growing tensions between the Association of University Teachers and the mainstream of the trade union movement. Yet only 12 years ago AUT members were deeply opposed to their professional body affiliating to the heavily blue-collar TUC.

Two things have changed: the domination of the general council by the industrial unions was already being eroded by the phenomenon of white-collar trade unionism and this has given the AUT its chance of a seat. Also the AUT itself has come to see its role within the wider trade union movement and its potential as an opinion-former at the first stages of policymaking.

Early surprise that Ms Warwick should be trying for a seat so soon after her controversial appointment as general secretary less than a year ago is now being diluted. Many observers think that she has a real chance of winning one of the 11 seats specifically reserved for unions with fewer than 100,000 members, and that even if she fails the effort will have been worthwhile in putting the AUT on the map.

The arcane processes of electioneering within the TUC and the left and right slates which are supposed not to exist are expected to have less effect in the election for the 11 reserved seats than had earlier been thought likely.

Other factors are going to come into play and Ms Warwick is likely to benefit from them. The real nature of the struggle will not become fully apparent until after the last moment for nominations to be withdrawn, which is reached today. She does not appear on the left-wing slate, which earlier this month was too full with 12 names. The right-wing slate, whose disclosure two years ago provoked a serious row within the National Association of Teachers in Further and Higher Education when its general secretary's name appeared on it, still has two vacancies.

Ms Warwick, very much a moderate in TUC terms, could fit into one of those slots - and it was being pointed out that the right would enjoy a significant tactical advantage by including a woman.

She is the only woman among the 31 candidates for the reserved seats, and only one woman, school dinner worker Mrs Lily Stevens of the National Union of Public Employees is to hold one of the seats for the larger unions.

Of the 31 candidates, almost a dozen are from "white collar" unions, many like the AUT are taking advantage of the new constitution to stand candidates for the first time. It is likely that a large slice of the reserved seats will go to people now on the general council whose unions fall within the less-than-100,000 bracket.

There is Mr Bill Sirs, of the Steel Trade Confederation, whose union membership figures have dipped below the cut-off point.

But despite the declared intentions of the right it is expected that most of the incumbents, who tend to be regarded as left wingers, will retain their seats. They include Alan Sapper, brother of Ms Warwick's predecessor at the AUT. A handful of seats will be up for grabs and it is one of these Ms Warwick is chasing.

Interestingly, the National Association of Teachers in Further and Higher Education is not trying for a general council seat this year, although its 76,000 membership puts it in a strong place for the vote on reserved seats.

Its general secretary, Mr Peter Dawson, stood unsuccessfully in 1981 amid considerable internal dissection about the way his nomination went forward

and also his appearance as one of the nominees supported by the right in their efforts to dislodge left-wingers such as Mr Ray Buckton, Mr Ken Cameron of the Fire Brigades Union, and Alan Sapper, the general secretary of the Association of Cinematograph, Television and Allied Technicians.

Ms Warwick's candidacy also has some odd features. Rather than being part of a long-term strategy, it seems to have arisen as a last-minute proposal during an executive meeting only a week or two before nominations were due to close. The discussion centred on what line the AUT's delegation should take in the voting for the reserved seats - and it was suggested that Ms Warwick might care to stand. Discussion was so brief that one senior member of the executive who slipped out of the meeting missed it completely.

Little time was left for the necessary groundwork, the absence of which helped Mr Dawson's attempt two years ago. If she is successful - and the results will be known on the Tuesday of TUC week - Ms Warwick will bring two very basic but sorely needed qualities to the general council - her youth and her sex.

With NUPE's Rodney Bickerstaffe she would be one of the youngest general council members with the crisis of youth unemployment and its associated issues forcing its way to the top of the TUC's agenda. If she wins it will take the female membership to eight in a general council with a total of 52.

The 1971 argument within the AUT over affiliation cut deeply across the union membership. An underlying issue was whether affiliation would endanger the AUT's standing as a politically independent professional body.

It was hardly a progressive image, but a more practical reason for staying outside the TUC was given by the AUT's own executive which argues in its constitution that the university academics' pay bargaining machinery - the two-stage process at which the true paymasters are only involved at the last fence - was better than anything used in the trade union movement.

The vote, when it came, was decisive; although the turnout was just 60 per cent, this probably reflected a high degree of confidence among opponents that affiliation would be rejected. It was, by 3,936 votes to 8,514 - 69 per cent of those voting against.

But attitudes soon began to change within the union especially over pay bargaining. The economic uncertainties of the early 1970s and their political side effects, began to tilt the balance. By 1974, talks with the TUC were urged by the union's council, despite the reservations of the executive.

By the end of the year, the council had swung firmly in favour but a test of the full membership was necessary and a ballot was called for in May 1975.

The final outcome was as decisively in favour as the 1971 ballot had been against. The growth of the union over the intervening period meant that more academics actually voted than the total 1971 membership. Of the 20,741 voting (72 per cent of the total) 13,140 (63 per cent) voted for affiliation and 7,584 (26 per cent) against.

The AUT has, in conjunction with other unions, begun the process of convincing the industrial unions of the central value of education, particularly after school. It has also been one of the leading agencies in alerting the union movement to the dangers of cash limits and their effects both on salaries and spending programmes. It is difficult to see the AUT considering pulling out of the TUC, but a voice at the council table would add zest to its role.

David Jobbins

Let your fingers do the talking

and global computer networks. Logica hopes the Cambridge ring will outperform other candidates for local area networking and GEC-Marconi has an eye on the sales of satellite dishes. As most medium-sized companies will soon have a host of computers which need access to the same data and must return results to a central store, the ultimate market for fast networking should be highly lucrative. The Department of Industry hopes the two companies can turn the academic ideas embodied in UNIVERSE into equipment for this market. One factor on their side is that the Cambridge ring is suitable for use with fibre-optic cables, carrying light signals instead of the electrical pulses which travel down conventional copper cables. These should be directly compatible with the fibre-optic links British Telecom is now building into the telephone system.

Experiments with encryption are another feature of the project incorporated with an eye to future commercial appeal. In a university, it doesn't much matter who gets hold of information entrusted to the network, provided that a message without too many errors reaches the desired destination. But a potential business user of a shared network will want to know that there are safeguards against unauthorized access. So the packets of data need to include codes to prevent prying computers getting at the contents.

For once, the project appears to have given Britain a lead in a crucial area of new technology, certainly in Europe. The funding for phase one of the project ends in April next year, around the time the test satellite is expected to

pass out of use. But plans for a more ambitious second phase are already taking shape.

John Burren, the team leader on the project at the SERC's Rutherford Appleton laboratory, said that phase two was unlikely to involve any other universities, but at least two new companies had asked to join. The main difference in the second stage will be a tie-up with new, very high-capacity land lines now on offer from British Telecom.

The next phase will use land lines as the core of the system, retaining access to a satellite for experiments. The advantage of the satellite is that anyone with a dish receiver can link into the system. And in a few years networks like UNIVERSE will use the new European Communications Satellite.

In the meantime, phase two will concentrate on commercial development of working systems. According to John Burren, much of the phase one work had to be done in a hurry because there were only 18 months of research time left after the network was set up. The job now is to get complete networks set up and working reliably.

The industrial partners will probably put in a larger share of the money for the next stage, and Burren emphasizes how successful the project has been as a new kind of academic-industrial collaboration. University researchers and commercial companies have different goals and outlooks and are used to different timescales that getting a joint project as complex as UNIVERSE off the ground is quite a feat.

There are several other areas of high-technology where much of the British know-how resides in universities - and in some, like remote sensing and artificial intelligence, the stakes may well be higher than in computer networking. Similar collaborations will be needed to develop commercial ideas in these fields, so UNIVERSE could well set a pattern for future sponsorship of pre-competitive research.

The Department of Trade and Industry and the SERC may well go to other universities and ask why they are not doing the same kind of thing.

Jon Turney

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It would be rash to forecast a commercial trajectory for Howard Jacobson's novel *Coming From Behind* as dazzling as that of *The History Man*, *Wilt* or *Lucky Jim*; what can be said with some certainty is that this hard-won chronicle of life in a rotting poly is to that section of higher education which Bradbury, Sharpe's and Amis' novels were to the new universities, redbrick and technical colleges.

Do not take my word for this. Go rather higher—to Malcolm Bradbury in fact, who acknowledges Jacobson's book as being "the poly novel."

To come straight to the point, for there is ultimately no dodging it, *Coming From Behind* is based on Wolverhampton Polytechnic, where the author taught English for six years. I hesitate to say it is set in Wolverhampton Polytechnic as the place is cosmetically rendered as Wrottesley.

Jacobson himself looks like a sort of thick-set Jewish John Lennon; at 40 the same generation, though from Manchester not Liverpool, with the same decidedly wispish, caste of humour, and of course, better educated. The Beatles connexion is not quite as spurious as it sounds since it is to re-emerge, in a sense, in Australia. If you imagine a Lennon figure, with these modifications, surfacing from a grammar school in Manchester rather than from Quarry Bank High to graduate not in the *nachleben* of Hamburg but at the Cambridge court of F. R. Leavis (God help them both), you have a rough image of the man.

For a finer image you must turn, as Leavis would have urged you to do, to the text of *Coming From Behind*, where lurks the autobiographical cipher of Sefon Goldberg, no less Jacobson than Wrottesley is Wolverhampton. Goldberg, also from a northern Jewish family, is teaching English at the poly, dreaming of emigration but snared among the nightmare spires of recessive industry and inner city decay.

It is the nadir of his academic career, and his nerves are so scarified by the deepening cycle of under-achievement that an almost bodily pain is induced by evidence of others' success; for example that of Cora Peak, a bright young woman modelled on one of the 20 Best of Young British Novelists, and of a journalist contemporary based on a former *Times* man.

This is what Jacobson says of that period in his life: "I had just that sense of paralysis, that feeling that I couldn't go out and buy a Sunday paper because someone inside would be doing something terrific. I had no difficulty in seeing how some people can stay in that mood and live out an entire life in that bitterness and state of almost clinical depression. It is my belief that there are far more people than care to admit it who live their lives in a latter of resentment."

"I came from a part of Manchester which was full of kids who did really well. Rikie Brookes lived at the foot of the street; ICCC used to practice in our front lounge. Even the ones you haven't heard of are famous. Someone's a managing director of Schweppes, someone's something senior in Colgate, someone's become a professor, another is an actor with Peter Brook."

What Goldberg the lecturer retains, bound as he is not on a wheel of fire but of failure, is his wit — a wit to cut endless snarling aphorisms about Leavisites and lapsed Leavisites of every kidney.

But what had gone wrong? As an undergraduate Jacobson had sat at the feet, "literally at the feet", of F. R. Leavis in the highly charged days of the Oriel Debate. Indeed he was being groomed to take up F. R.'s mantle. "I used to go silent in his presence," he recalls. "I was totally overawed by him."

He remembers that there had long been a history of Queenie Leavis doing all the spotting for her husband, being a sort of scout in the soccer sense, and of having a closer contact with the "men" than did she. "She was either Jewish or half Jewish and she had a sweetish, almost maternal, way of talking to the boys. I was in that link without knowing it."

He got not the expected First, but a 2.2. Not surprising, really, if you consider that during the general essay paper he wrote on discipline and the need to beat people on the base of the spine in the area of the lumber ganglion.

Which people? "Oh, students if you were teachers, wives if you were husbands, off his head?" "Oh no, I was a good, loving student of the time."



Howard Jacobson: from riches to rags to rotting polys.

Dreaming among the nightmare spires

Alan Franks talks to Howard Jacobson, exponent of 'the poly novel'

lia, but hardly as an exile. At just 22 he was taken over to Sydney by a Leavisite professor from Melbourne called Sam Goldberg. The fact that in the novel Sefon has a father of that name is, he says, a little in-joke.

Jacobson, with one or two other Leavisites "fresh from the factory", was given an enormous amount of very senior teaching work, while the previous senior lecturers found themselves with all the bum jobs. While he was there a major row blew up, a McCabe fracas at Cambridge 20 years later, which resulted in Sydney University offering two distinct English literature courses, one Leavisite, the other not. "We, of course, were Course A. We insisted on that!"

The upshot was a mass exodus, with all the Melbourne Leavisites going back to Melbourne and Jacobson back to England. But while at Sydney he had achieved celebrity, lecturing to as many as 1,300 students, "which I just loved", working in a dynamic department and having all his controversial utterances reported in the press. "It was a great time for northern Englishmen to be wandering around the world, mainly because of all the rock groups coming out of Liverpool. But I was nothing to do with John, George, Paul and Ringo. I was a Leavisite, for Heaven's sake!"

These had been the best three years of the first half of his life, and a world away from the hard-pressed Wrottesley/Wolverhampton of the late 1970s. Back in the UK there were, to his horror, no "Welcome Home Howard Jacobson" banners on the docks, and, worse still, no jobs for a researchless, half-degreed, just-back-from-Australia Leavisite. He taught back in the school of Manchester at a Jewish school and then did supply teaching at Bethnall Green, Riches to rags. The academic equivalent of Paul McCartney playing bass in an East End pub rock band. And this at a time of expansion in higher education.

When we met, Jacobson noted with a sense of irony our enforced shift from the Palm Court of the Waldorf, where *the damsel* was a bit heavy on the *chantant*, round the corner to a sort of Joe's Café, with standard issue glazed tiles, a steady clatter of crocks and tea, a taste of long life milk. Downing to Wrottesley at a stroke.

If the next few years are compressed (supervising at Solihull — "No, I don't look Leavisite! I don't think I had been forgiven for Australia" — working for a publisher and as a labourer in Melbourne), it is because the bleak terrain of Wrottesley is beckoning.

"Here I know that I had achieved failure. I do not think it is possible for a human being to live in a worse place than Wolverhampton. It was a lonely, some town, the centre appalling to the eye. On my third night there I went to a concert. Harry Belafonte I think it was, and the London Mozart Players. I could much low music that they talked and told jokes."

Under Symonds

There is a point in *Coming From Behind* at which I feared Jacobson had finally lost his satirical balance, when the poly staff are offered quarters in the new football stadium nearby. The twinning ceremony (with the disciplines of Wrottesley sharing common ground with the indisciplines of the terrace) is fictitious, he admits, but the precedent of the whole episode actual: "During my last year the arts department, history and English, moved into Molyneux. They got us to agree by offering us a little room each with a carpet and a phone."

One might think that Wolverhampton Poly is unamused at being dragged thus into the eye of the reading public, and yet the poly bookshop has made a big display of the novel, and the notes from Jacobson's former colleagues have been nothing but flattering. "Well, put it this way. I have not had notes from all of them, but the ones I have had have been flattering."

Surprisingly perhaps, there is an absence of scorn or vengefulness towards the standards of his old colleagues. Indeed, in many respects the book is on their side, a testimony of their frustration at having to work in such a place at such a time. None the less, he allows himself a swipe, outside the covers, at those intellectuals who either expressed their disdain for the community in which they worked by driving out of it, living in country cottages, brewing their own wine and beating their own jewelry, or who stayed in the centre and disguised themselves as ordinary artisans.

And he himself? "Me? Oh, I was in a flat in the middle of the town; going mad. And writing this."

"The polys are getting worse, he says. Not necessarily the London ones, but those in the dead industrial centres. "There is a frustration, natural among teachers of fine arts as English, in an establishment whose aim is to be 'relevant'."

"One unpleasant thing that has happened under this government is that it thinks that teachers have to be 'answerable' all the time. I can see that this is in response to an excess of the other thing, I mean the freedom of expression, and that is the other thing which is an excess of the other thing. You are always leads to this reaction: 'You are teaching citizens. One of the aims of English literature is to teach people not to be good citizens. It is anti-vocational. It needs to be a kind of anarchic force in an institution, questioning everything. Healthy education must discipline that will question everything. That is a sign of educational good health.'"

Will, and Howard Kirby and Lucky Jim, and in common with their creators, transcend their environments in their own very different ways, and Schon Gouder suggested by Howard Jacobson, or is the other way round? — has written his novel *Nowhere* here in his Boleyn, back more a world away from Wrottesley, and is busy at work finishing a second novel. Nothing to do with higher ed, he promises.

The ancestor of McNab casts a long shadow

It is now four years since the Council for Tertiary Education in Scotland was sent off to review the structure and management of the tertiary sector.

Compared to its counterpart south of the border, Scottish further education is fragmented, largely through historical accident. At the beginning of this century, the central institutions were set up to provide a technical education at a time when the only post school education available was through the universities. There are now 14 of these vocational colleges, centrally run by the Scottish Education Department.

Teacher training, originally undertaken by church colleges, is now also run by the SED, but through monotechnic colleges of education. In the mid 1960s, while the size of the CI and education college sector remained constant, there was an enormous burgeoning of further education colleges run by the local authorities, until there are now 54 throughout Scotland.

The tertiary council, an advisory body to the Secretary of State for Scotland, rightly concluded at its first meeting in 1979 that the separate growth of these institutions seemed to carry a considerable risk of inefficient use of resources, of overlapping provision in some areas and underprovision in others, and that the system was of "such complexity as to be confusing to the minds of the public."

The sector had to be urgently reviewed since tertiary education had now to be able to cope with falling rolls, changes in job prospects, and restriction on resources.

But when the council's proposals were finally published three years later, they left the present system virtually unchanged. They proposed that there should be a group of directly funded colleges, comprising the current central institutions and colleges of education. The other colleges should be run by the local authorities. In other words, no fundamental change.

Since the council's majority report believed in distinguishing between advanced and non advanced further education, it added that three prestige local authority colleges, Bell, Napier and Glasgow College of Technology, should become CIs, while one of the present central institutions, Leith Nautical College, which teaches a high proportion of non advanced courses, should be handed over to Lothian Regional Council.

The crucial proposal made by the tertiary council was that a new University Grants Committee type of body should be set up, responsible for 100 per cent funding of all tertiary education.

Proposal which was rejected

This proposal has been completely rejected by the Scottish Secretary, Mr George Younger. It is no secret that the Scottish Office has scarcely been hanging on the tertiary council's every word. Even while it was deliberating, two education colleges were axed and another merged without the council's view being sought. And it has taken Mr Younger 18 months to announce his decision based on the council's recommendations.

Admittedly, a new body is to be set up: the Scottish Tertiary Education Advisory Council. But Mr Younger is certainly not letting it control the £200 million spent on Scottish tertiary education.

Instead, he has used the tertiary council's report as a means of consolidating the power of the Scottish Office: Scottish students in higher education receive mandatory SED grants. The Scottish secretary cannot control intake to the universities, run from London; neither can he control intake to local authority colleges.

But he has taken the advice of the Bell, Napier, Glasgow and Leith, and will therefore control advanced further education colleges and their student intakes, enabling him to impose discipline on tertiary education without having to mount a direct attack on local authorities.

He has also decided that certain non advanced courses of "national significance" will come under the aegis of the

Olga Wojtas reports on the legacy of the Council for Tertiary Education in Scotland, and its successor

SED, giving it further control over student intake.

It is likely to take around 18 months to transfer the colleges. Leith poses a statutory problem, since the SED runs it. But Mr Younger has no legal power to take over the local authority institutions. However, Lothian and Strathclyde Regional Councils are not likely to oppose the transfer of Napier and Glasgow College of Technology, particularly when Lothian's Tory administration is concerned to reduce the burden to the ratepayer.

But Strathclyde is keen to retain Bell, leaving a local further education college in the Hamilton/East Kilbride area. The Scottish Office may find itself in some difficulty over Bell Leith: its argument is that Leith should be transferred since it runs mainly advanced courses, and has no degree. Bell itself does not run a degree course.

The principal of Leith Nautical College, Dr Alan Watson, maintains the tertiary council's transfer recommendation has been a self-fulfilling prophecy, since following its report, the SED has refused to give the go ahead to a planned degree in se transport. The college has even been refused staff appointments, and seventh of the staff are on short term appointments of one term, he adds.

Surprise among the cynical

"The tertiary council, who was completely devoid of nautical offshore experience, and didn't even visit the college, made a very serious proposal on its future. We could quite move to 70 per cent advanced courses, but we don't want to desert our traditional customers for the sake of academic drift."

There was some surprise among the cynical that Leith was to be transferred: Mr Younger's cousin is chairman of the board of governors, and there have been murmurings that during the axing of the education colleges, Hamilton was sacrificed instead of Craig, which is in Mr Younger's constituency.

Of course, at a later date, Mr Younger may take the credit for saving both Bell and Leith while still gaining control of two other major institutions. But even if Leith is transferred, and probably expanded by Lothian to fill the gap left by Napier, the SED still have the loophole of being able to control its non advanced nautical courses on the grounds that they are of national significance.

What is still unclear is the part the new STEAC will play in the future of Scottish tertiary education. It seems to have been set up purely as an administrative convenience, an official response to the tertiary report, and the SED will see no need for it.

Mr Younger has said it will liaise with the UGC, the Manpower Services Commission, and the National Advisory Body, but it is simply not in the same league since it has no control over money, and cannot be seen as an equal partner.

Some people felt the recommendation of the UGC type body would appeal to the Scottish Office, who could use it as a buffer, as the Department of Education and Science has done with the UGC. But despite its lack of financial power, it could still be used as a buffer, if, for example, it concluded that social sciences at Paisley should be axed.

A great deal depends on who the Scottish secretary appoints in the New Year to serve on it. It should not be assumed the STEAC will merely toe the party line, and it could stray beyond its remit into the fields of community education and distance learning.

The original tertiary council was chaired by Sir Norman Graham, former secretary to the SED, and there was no great surprise when it plumped largely for the status quo. There will be considerable interest in who Mr Younger appoints this time.

Emmanuel Anati examines the importance of rock art in understanding our cultural evolution

Art with a message that's loud and clear

The appearance of *homo sapiens* on Earth marks the emergence of a new species; one able to communicate through a complex assemblage of vocalizations that we call language. The earliest vocalizations, gesticulations and other communicative expressions, both oral and visual, were, of course, not recorded. But their graphic messages did reach us. While artefacts and other material remains have been unearthed in early archaeological sites, the bulk of prehistoric creative expression has been preserved for us in the form of rock art. Its study and evaluation provides a unique insight into man's intellectual life in the last 40,000 years and reveals his imaginative and conceptual adventures. The consistency of characters and subjects throughout the world testifies to the common origin of human intellect.

In all the territories which have been inhabited by human beings, rich concentrations of rock art provide new perspectives in the history of mankind, from Palaeolithic hunter-gatherers to contemporary collectors, fishermen and pastoral societies.

Because it falls well before the advent of writing, rock art constitutes a major testimony of early man's expression of himself and his world view. While even the most ancient script is just over 5,000 years old, rock art provides a record of the way man lived many thousands of years prior to that. Despite its obvious importance, most rock art has been widely neglected and ignored as a source of knowledge.

The technical aspects of culture progress is a more or less coherent evolution. New innovations and inventions constitute the base of the following step in the evolutionary sequence, and result from experiences which motivate subsequent progress. It is questionable, however, whether such logical evolution occurs in the artistic aspects of culture as well. Current cultural standards influence the evaluation and appreciation of art and creativity. Aesthetics change from person to person and from culture to culture according to fluctuations in style and taste. This concern has to be kept in mind when rock art styles are described as realistic, descriptive, abstract or symbolic, for such terms only reflect our own degree of comprehension and our own cultural criteria.

No artist ever represented everything he saw or knew, but rather made specific choices. Although it varies from one age to another, the subject matter is always rather circumscribed and the frequency and assemblage of subjects allow us to construct a rudimentary hierarchy of his values. The gamut of subject matters always well-defined and consistent within specific cultural or tribal patterns.

Rock art may help define such patterns. When certain assemblages can be located chronologically, each represents a different stage in the cultural sequence. The depiction of the species of animal hunted and of the food gathered tells us much about the ecosystem in which man lived. The depiction of weapons, tools and other objects, reveal his technical abilities. The illustration of his myths and beliefs bring back to our consciousness essential aspects of our intellectual roots and displays the existential relationship between Man, Nature and the "Supernatural".

Comparative studies indicate specific kinds of societies the world over. Certain kinds of hunting societies, for example, tend to depict animals in a particular style and to use a consistent assemblage of symbols the world over. Pastoral societies from different regions have stylistic characters in common and focus their representations on the animals they breed. The art of fishermen, or that of pastoral populations may show similar traits of character in far distant areas. No doubt, daily concerns and specific patterns of activities have had parallel impacts on people with similar activities and background, so as to result in similar trends of figurative output.

It seems, therefore, that patterns of style and subject matter indicate specific horizons of mentality and hence enable us to detect stages of culture. It thus seems possible already to define

the meaning of style in a very general way, though the details of each figure may reveal much more about the artist's state of mind, preoccupations and motivations in his cultural horizon. Rock art studies may have, in the near future, a tremendous impact in reconstructing the history of mankind at large.

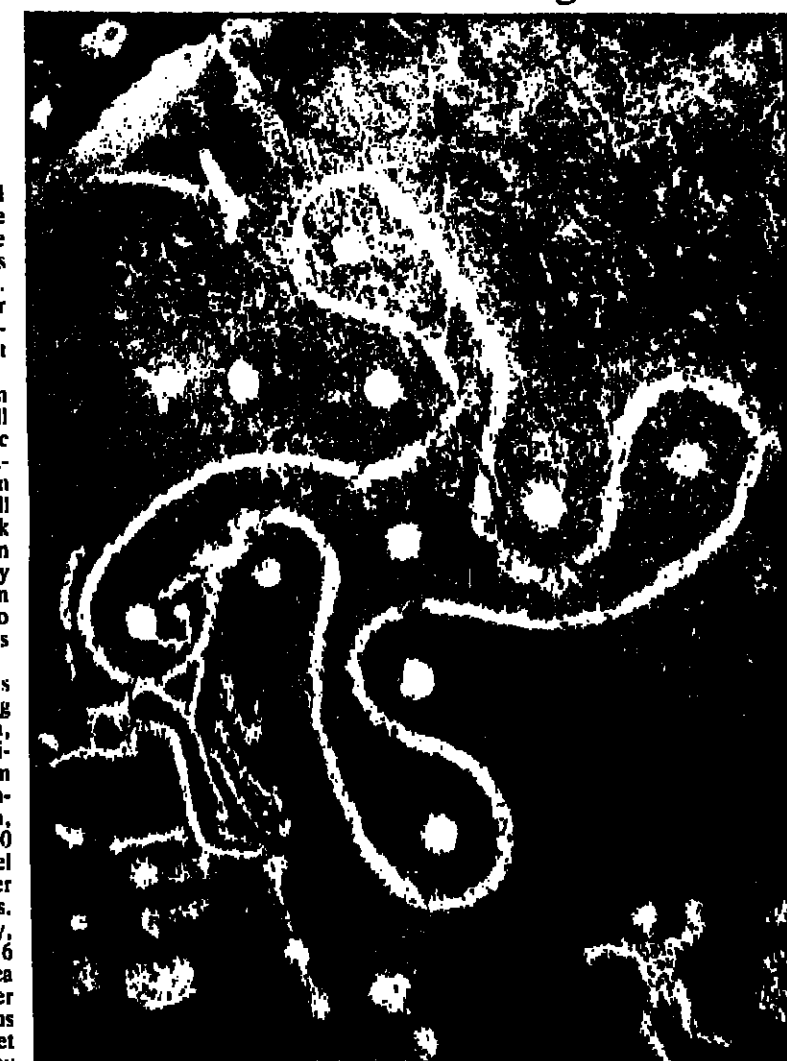
The painted caves of Lascaux in France and Altamira in Spain are well known because of their geographic location and their inclusion in art history textbooks. What is less known is that these sites represent only a small fraction of the world's heritage of rock art. Recent discoveries have shown that in many parts of the world early man chose to depict and engrave on rocks. Although exploration has by no means been thorough, rock art is reported from thousands of sites.

Some areas contain an enormous quantity of figures. The Drakensberg range in Lesotho and South Africa, contains over 1,000 sites with an estimated 1,000,000 figures. Arnhem Land, in Australia, has a similar number. The Tassili MA'jjer, in Algeria, has over 400 sites, with at least 400,000 figures. The Negev and Sinai, in Israel and Egypt, include 17 areas, with over 300 sites and at least 350,000 figures. The Alpine range, in France, Italy, Switzerland and Austria, counts 16 areas. Just one of these, Valcamonica in Italy, contains 76 sites with over 180,000 figures recorded. Various areas in Arabia, India, the Soviet Union, Brazil and Argentina may count as many figures, though precise figures are not yet available.

The world production of rock art documented so far, counts over 20,000 figures, but we can estimate that the total number of figures still preserved (but as yet undocumented) is well over double that. This represents an extraordinarily valuable documentation of man's intellectual adventures and an outstanding heritage and source for historical reconstruction. Such art reveals the human capacity for abstraction, synthesis and idealization; it describes economic and social activities, beliefs and practices; and provides a unique insight into the intellectual life and cultural patterns of early man.

The study of rock art began in 1627, when the first tracings of prehistoric rock figures were made by a Norwegian school teacher, Peder Alfsson. Sporadic reports on rock art appeared throughout the eighteenth and nineteenth centuries; however, major studies were not undertaken until the end of the last century.

The discovery of Altamira about 100 years ago led to extensive investigations of Palaeolithic cave art in France and Spain. Since the beginning of this century, recording and description has continued. Leading figures like the Abbe Henri Breuil and Hugo Obermaier, followed by Teilhard de Chardin, created a challenging school of thought that contributed to a new cultural approach. Previously, "research" had consisted of description plus theory. They attempted to establish



A "celtic rose" and warrior figures: part of a large rock composition at Carpane di Sello in northern Italy, one of the most extensive regions with rock art sites.

lish dating for prehistoric art and to explain its meaning, relating it to habits and tales of present-day tribes. There was a great deal of more or less factual account with little analysis and no synthesis in these preliminary studies; yet they provided an astonishing intellectual base that stimulated interest and fostered further research.

For each project, methods must be adapted to ensure that the data required for analysis can be obtained. Recording paintings requires different techniques from recording engravings; where both occupy the same surface, there are further complications. In addition, the dimensions of figures and decorated surfaces, their state of preservation, the type of rock, the presence or lack of various techniques of execution and stratigraphic superimposition, irregularities in the rock surfaces, and differences in patination (that is, the colour of the naturally oxidized surface of the rock which changes colour with age) demand, in each case, special approaches for study and research. Recording includes also a concern about superimposition and stratigraphy, quantitative analyses of subject-matter, evaluation of stylistic patterns, the study of the raw materials, and the tools used, together with numerous other considerations.

Differences also exist in the methods of researchers due to variations in

approach and training. Nevertheless it is imperative to develop and establish a conventional system frame to enable researchers to understand each other, to compare results and to identify common elements and peculiarities in each area.

Once an area is accurately recorded, the main question that arises is what should be done with the collected data. As with the methods, the goals of research are also developing. In the last few years wider perspectives have opened. Matters changed when it was found that rock art, like writing, is a very important source for historical reconstruction.

Out of this consideration there has been a growth in rock art research both in dimension and outlook. In the last generation it has ceased to be just a descriptive subject and has become a research discipline. Twenty years ago there were very few specialists, concentrated in a few countries. Today there are over 200 specialists in many countries; thousands of people make pilgrimages to rock art sites.

The Centro Camuno di Studi Preistorici was established in 1964 to study prehistoric and tribal art and related subjects that concern the economic, social and intellectual life of prehistoric and tribal man. In 1968 it organized an International Symposium on Rock Art under the auspices of the International Union of Prehistoric and Protohistoric Sciences, at which over 100 rock art specialists from 26 countries gathered and began a new stage in world cooperation. In November 1979, the International Council on Monuments and Sites created the International Committee on Rock Art which now has over 150 members. More recently UNESCO has cooperated in organizing seminars and symposia to provide professional training and to lay the foundations for a cooperative, international strategy to preserve and document prehistoric sites.

Major concentrations of rock art are found more or less evenly distributed on Earth's inhabited land and research projects are now being carried out the world over. In 1982 alone some 35 research reports were received, together with nearly 40 regional reports. The response has not been consistent, however, and it is doubtful whether the reports received so far accurately reflect the actual world-wide distribution of rock art presently under investigation. New waves of activity appear to be particularly strong in Africa and South America and there has been a consistent increase in Asia, Australia, Europe and North America.

Recent research indicates that the beginning of rock art is much earlier than was once realized. In Africa the oldest art dated so far is from the Apollo 11 cave in Namibia, where printed animal figures on stone slabs have been found at an archaeological level which W. E. Wendt defines as "middle Stone Age" and dated by three C-14 tests to 28,400, 26,700 and 26,300 BP. In Tanzania, there may be even older art but no C-14 tests are yet available. A sequence of different styles of early hunters' rock paintings recorded during a UNESCO consultancy in 1981 is likely to have started earlier than any other rock art so far dated and may even be over 40,000 years old.

In Europe, the early evidence of cave art goes back to the Aurignacian period, sometime between 33,000 and 25,000 BP. Some graphic markings have been attributed to the Mousterian period and considered as a "pre-figurative" stage in graphism. This hypothesis is controversial but should it prove to be correct, the earliest graphic markings in Europe would turn out to be older even than 40,000 BP.

It's possible to say that the earliest datings so far available indicate that the earliest rock art we know of came into existence more or less in the same age span, that is, between 40,000 and 30,000 BP, both in western Europe and southern Africa. In two major continents, Asia and Oceania, rock art was already in existence before 20,000 BP and there are American sites from around 17,000 BP.

As the main sitings suggest, a high percentage of the 144 "major areas" of rock art are located in areas now desolate or semi-desolate, in the present ecological situation, these can be defined as peripheral or isolated zones. The general pattern of setting recurs, from the Dammah Wells in central Arabia to Tromsø in Arctic Norway; from the Acaucas in the Libyan Sahara to Panaramitee Hill in southern Australia; from the Kalahari in southern Africa to Saint Ignazio in Baja California, Mexico; from Valcamonica in the Italian Alps to the Middle Yenisei River in Siberia. The data so far available indicate that the less dense areas of rock art are confined to the regions covered today by large tropical forests. We find very little evidence of rock art in Brazilian Amazonia, in the Congo and in other west-central African countries, and in south-eastern Asia.

The term peripheral is not always fitting, however. The major concentrations of Palaeolithic art in Europe, for example, are in the dead-end which faces the Atlantic Ocean; the Franco-Cantabrian region, where man is likely to have moved about much less than in eastern Europe, the Balkans and in the Mediterranean areas, where later civilizations flourished. It is peripheral only when Gibraltar is a barrier. Koonalda Cave in Australia is located again in a dead-end facing the southern Ocean. So far nothing as early as Koonalda has been located in northern Australia where man is likely to have arrived on that continent and to have moved about much more. In Africa, again, the major concentrations of the earliest art horizons come from Tanzania and Namibia, both rather marginal areas in the late Pleistocene movements. Such recurrent ecological and topographic settings from rock art still demand explanation.

Preservation and conservation efforts are being undertaken both by governmental and non-governmental agencies in several countries: Algeria, Argentina, Australia, Canada, Egypt, France, Italy, Lesotho, Norway, South Africa, Spain, Sweden, Tanzania and Zimbabwe. Despite differences in ecology and climate, similar causes of deterioration have been detected the world over. Apart from natural decay and deterioration from geo-physical, chemical and biochemical causes, as well as those produced by flora and fauna, man is still the greatest culprit. Re-use of sights, neglect and vandalism have taken their toll. Coordinated documentation, analysis and preservation are all essential if this most valuable of all early historical resources is not to be lost.

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Evidence of class in prehistoric times? A figure carrying an enormous load on a horseback by a servant.

BOOKS

Ideas in opposition

Talcott Parsons On Institutions and Social Evolution selected writings edited with an introduction by Leon H. Mayhew University of Chicago Press, £24.00 ISBN 0 226 64747 1

Talcott Parsons by Peter Hamilton Ellis Horwood and Tavistock, £7.25 and £3.25 ISBN 0 85312 429 9 and 439 6 C. Wright Mills by John Eldridge Ellis Horwood and Tavistock, £7.25 and £3.25 ISBN 0 85312 533 3 and 534 1

Talcott Parsons and C. Wright Mills were very different kinds of sociologists. This difference had little to do with their different Protestant and Catholic origins, not much to do with one growing up in the Middle West and the other in Texas, and hardly anything to do with their eventual institutional locations at Harvard and Columbia respectively. Where they differed was in their conception of the sociological task, in the role which theory played in that enterprise, in the character of sociology as a professional activity, and in the political responsibilities of the social scientist.

The marked differences between them – epitomized in Mills's savage denunciation of Parsons's *The Social System* in *The Sociological Imagination* – are evident in these three rather different books. Two are introductions to a new paperback series on Key Sociologists, which bears some resemblance to the Fontana Modern Masters genre. The third, Leon Mayhew on Parsons, appears in the much more substantial Heritage of Sociology series edited by Morris Janowitz.

Talcott Parsons on Institutions and Social Evolution will become a standard reference for those studying the development of his sociological ideas. It consists of 20 extracts from Parsons's work originally published between 1935 and 1977, grouped under the headings of sociological theory, institutionalization, institutionalized exchange, and social change and evolution. This is preceded by a substantial 60-page introduction by the editor which succeeds in taking a fresh perspective upon the development of Parsons's thought. Mayhew seeks to defend Parsons against the criticisms who treat *The Social System* as his major representative work. He succeeds in showing that Parsons's theoretical approach was much more subtle and that he was far from viewing society as comprised of over-socialized persons, caught in a rigid and unchanging normative system, one moreover without structural conflicts and justified by consensus on basic values.

The starting point for a proper understanding of Parsons, Mayhew argues, lies in his thoroughgoing rejection of positivism and his development of an action frame of reference in which actors have ends they are pursuing, within the constraints of realistic obstacles and the means open to them. The study of action involves a study of tension between normative and constraining elements. Both are necessary, and Parsons was certainly not an idealist. He did, however, emphasize the strategic centrality of the normative. This led to his central emphasis upon institutionalization and the proposition that "the structure of social systems is constituted in institutionalized normative culture."

The value of Mayhew's introduction lies in explicating the significance of this central concept of institutionalization. He shows how at first Parsons placed greatest emphasis upon socialization, then he shifted to the hierarchy of control, subsequently becoming interested in institutionalized exchange (notably in *Economy and Society*). The latter evolutionary social change. The abstract level at which Parsons worked on his ideas poses problems for the student, but Mayhew's lucid and convincing analysis of the continuity within Parsons's thought.

Peter Hamilton's short book has a different purpose and is written for a different audience. Mayhew's reader needs some familiarity with Parsons's work. Hamilton writes for the beginner, and provides a clear and interesting introduction to a particularly complex sociological thinker. After a substantial biographical chapter, he treats Parsons more conventionally in terms of three phases of his intellectual development, the voluntaristic, the emphasis on social systems theory, and the focus on hierarchies of control. Hamilton sets out these phases fairly within a brief compass, though the extensive use of acronyms is a minor irritation. There is a useful full bibliography of Parsons's work, though the point of listing his PhD students, many of whom will be unknown to British readers, is unclear. Hamilton is weakest in his brief attempts to assess Parsons's place in the development of sociology, a challenge which Mayhew meets more effectively.

If Hamilton's essay is useful, John Eldridge's on C. Wright Mills is distinctly important, because a clear short introduction to the work of the stormy petrel of American postwar sociology has been lacking for far too long. Eldridge provides a sympathetic but realistic overview of Wright Mills's life and work, moving from Texas to

Wisconsin to the East Coast, and from *Sociology and Pragmatism* through *Character and Social Structure* to *White Collar*, *The Power Elite* and finally *The Coming of World War Three*.

He brings out the essential elements of Mills's approach, including its historical specificity, its grounding in the classic sociological tradition, its strain of radical social criticism, and (prior to Mills's premature death in 1962 at the age of 45), its increasingly apocalyptic tone. Space is given to Mills's American critics, and Eldridge suggests that the famous strictures upon "grand theory" and "abstracted empiricism" in *The Sociological Imagination* were less than fully justified.

The two greatest contrasts between Parsons and Mills lay in their level of analysis and in their value standpoints. Parsons was, as Mayhew brings out, Olympian in his approach. His commitment to abstract and generalized theoretical formulations, which led to a specialized and sometimes impenetrable conceptual language, rendered a good deal of his theory not susceptible to empirical testing. Mills grounded his empirical studies much more firmly in the particular time and place in which they were carried out, linked to particular theoretical tenets. Eldridge discusses his clash with Parsons over the definition of power used in *The Power*

Elite. Politically, Mills was a committed radical. In social science, Thorstein Veblen was his nearest equivalent. His work showed traces not only of political commitment but of a prophetic quality that sits uncomfortably with academic discourse. It is perhaps this which explains why "critical sociology", of which Mills was the foremost standard-bearer, has not infrequently seemed so insubstantial in failing to turn promise into achievement. Talcott Parsons, on the other hand, was strongly committed to the central value systems of American society. Mayhew discusses perceptively and fairly the charge that he was politically conservative, concluding that such a charge is an oversimplification and that a belief in confidence, trust and faith was the basis of his view of social order. Parsons's critique of the liberal intellectual's ambivalence about the contemporary world aroused the hackles of his detractors to such an extent that it has impeded a full and adequate appreciation of the subtlety and richness of his sociological thought.

Martin Bulmer

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Talcott Parsons

Social inquiry

The Scientific Analysis of Social Behaviour: a defence of empiricism in social science

by Michael Nicholson Frances Pinter, £15.50 ISBN 0 312 7082 5

Dr Nicholson seeks to make a case for an explanation of social behaviour which "in style follows the general pattern of the explanation of natural phenomena". In his view it is possible to make valid generalizations about human actions and experience within the context of a theory which satisfies the logical and empirical conditions appropriate to scientific explanation. The explanatory form corresponds to the covering law model or deductive-nomological explanation argued by Hempel and others as characteristic of the natural sciences.

The first part of the book is concerned with the elucidation of this model before turning to the problem of its application to the field of the social sciences, concentrating on economics and international politics. Though rather compressed, this discussion of scientific explanation is intelligent and perceptive.

The difficulties arise when the model of science as presented by the author is applied to social behaviour. Although he recognizes that the facts that human beings have cognition, consciousness, volition and purpose, differentiate their activities from the actions of physical objects, in his view this does not preclude the formulation of valid generalizations within the framework of an explanatory theory about them. According to Nicholson, human behaviour can be explained in terms external to those used by those engaged in it. In explaining, for example, why some people enter monastic life he asserts that citing their beliefs is insufficient; what is necessary is to explain why they held them. And this in turn entails the formulation of a theory which provides a basis for generalization about such behaviour.

This is to treat human actions, such as becoming novice in a monastery, as akin to an event in the physical world. But in blurring the distinction between an action as part of human consciousness and an event as a phenomenal "happening" Nicholson skates over the problem that scientific theory is essentially atemporal. The "real" world of events is timeless, though not devoid of duration, process and sequence. In principle scientific "events" are replicable. Yet the human world of action is essentially temporal, located in unique circumstances which give a specific action its character. An event is explicable in terms of cause and effect, by assumption within a theory; but an action is explicable in terms of intention and purpose, that is, within a framework of reasoning specific to it. The former entails generalization while the latter does not. The problem

for the author is that he wishes to generalize about human actions and this in my view is a mistake.

The notion of "event" as the subject-matter for a social science is further complicated by the author's conception of it as something not only observable in principle but as linguistic or verbal in character. And so the level of consciousness and expression is deemed after all to be relevant. In a sense human "events" are treated much as Collingwood treated artifacts; they have a physical dimension and a dimension of "thought". But unlike Collingwood the author is seeking to vindicate a theoretical approach which generalizes. Science, however, is not founded on a common-sense understanding of the physical world. There is indeed a sense in which the sun rises but it is not a scientific one. Its subject-matter is in a fundamental sense created through successful explanation.

In treating human action as a form of event both external and internal to the actor, Nicholson begs the question as to what is the subject of a theoretical inquiry. One condition for an explanation is that the thing explained is logically independent of the explanation. Yet if we have to internalize the explanation by inquiring into and understanding the reasoning of those whose actions we seek to explain, and at the same time stand outside that reference in order to advance a generalization about them, then we would seem to have confused two modes of explanation. For the former is specific and contingent, while the latter is atemporal and general. In a sense the language and logic of science is used to "explain" the language of human actions and experience. To put it another way, as social creatures, directly apprehend through language and practicing, to translate this level into an external conceptual framework is literally to do that, that is, to translate and explain. A genuine science of human behaviour would have a genuinely different subject-matter to that which properly belongs to the actual level of human understanding of action. Science discovers things in the sense that it produces new knowledge, not a rebash of that which we already know.

Finally, Nicholson seems to confuse the logical form of a hypothetical-deductive theory with the empirical conditions it needs to satisfy to make it a genuinely explanatory. A theory may satisfy logical conditions but yet have no causal application. Many theories exist in the social sciences including the theories of rational choice favoured by the author, while they may imitate the logic of a covering-law explanation they do not or cannot satisfy the empirical conditions of testing through experiment and observation. Perhaps the emphasis in the social sciences should be placed more on formulating the appropriate criteria for testing, rather than formulating theories.

In seeking to vindicate a theoretical approach, Nicholson has confronted the problems with honesty and with perception. His thought-provoking book is a serious contribution to discussion of the appropriate form of explanation in the social sciences. But a better "defence of empiricism" could be made if a genuine level of theoretical explanation of social behaviour actually existed.

being reconstituted within the subject countries. In Scotland and Wales the process was more indirect though, of course, English values still had a part to play. In a brilliantly argued essay Lord Dacre sets out to prove conclusively that "the kilt is a purely modern costume, first designed, and first worn, by an English Quaker industrialist, and that it was bestowed by him on the Highlanders in order not to prevent their traditional way of life but to save his transformation." Sharing this neoclassical mood, Prys Morgan separates myth from reality in the Welsh tale of the revival of the late eighteenth-century Druids, harps, red dragons, "Dwr Wales" with her pointed hat and cloak, even the Welsh mountains – all are very suspect pedigrees.

Charles Reynolds

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Customs made

The Invention of Tradition edited by Eric Hobsbawm and Terence Ranger Cambridge University Press, £17.50 ISBN 0 521 24645 8

When we describe a belief or pattern of behaviour as "traditional" we usually mean to indicate simply that it is well-established, though sometimes we also want to convey that its origins are obscure, hidden in the distant past, a matter of custom or convention rather than a direct development from a specific point in time. "Invention", on the other hand, implies a very precise moment and action – "Emile Berliner invented the gramophone disc in 1887." We do not usually go on from that statement to say that Berliner's invention started a tradition of playing discs on gramophones. We could say it, but we probably wouldn't.

Is it, therefore possible to talk of tradition as being invented? Eric Hobsbawm, together with the other five contributors to *The Invention of Tradition*, argues that it certainly is. He offers "invented tradition" as a "broad, but not imprecise" term, and describes the subject of the book as being to "encourage the study of a relatively new subject." In fact the term is often used imprecisely by the contributors or, rather, in so many different senses that its meaning becomes imprecise – and several of the essays would fit quite happily into totally different historical contexts. Yet the basic idea is a fascinating one.

The Invention of Tradition is quite literally packed with information, some of it familiar and everyday, some bizarre and arcane. The most immediately accessible examples of invented tradition are those in which rituals or symbols are consciously created with a built-in spurious historical authority. Bernard S. Cohen, for example, examines the use of *durbars* or public assemblies in India to demonstrate the way that the British consolidated their position of authority while apparently preserving Indian "traditions". In a related essay, Terence Ranger explores the importance of colonial Africa of what he calls "neo-traditions", codes of behaviour which though relatively new to many of the white settlers themselves soon gathered symbolic force as social and moral absolutes.

Both of these cases involve traditions being brought from outside of

the great strength of Dr Stafford's presentation is that by discussing her queens in relation to the stages of their lives, as "the bride to be", "the king's wife" and so on rather than biographically or chronologically, she avoids trivialization, and concentrates firmly on their role and function. The approach is one that would reward imitation – "Counsellors, Favourites and Followers" would make almost as valuable a sequel – and enables the author to extract an astonishing amount of illumination from the fragmentary and heavily biased sources from which she must write.

Here is the central problem in dealing with groups like women, whose members are the victims of prejudice, complacency or neglect. As Angela Lucas demonstrates all too clearly anything less than the most rigorous definition of the problem under review and the most skilful analysis of every text in the light not only of its author's general presuppositions, but of his (it is always his) particular circumstances and motives produces mere scissors and paste. For want of the technical expertise and intellectual firmness which these problems demand her attempt to bring together what the vernacular literature of medieval England reflects about the position and problems of women becomes an amiable but arbitrary series of generalizations on such topics as "the feudal wife", "the argument as limp as the conclusion that 'many women were neither regarded as useless, nor were they oppressed... and they were often accorded considerable responsibility'".

The relative wealth of surviving information about queens casts welcome light on some of the obvious concerns of women's history: the fear of sterility and the terror aroused by the illness of a child (though not the sexual brutality which is pointed up by some of the saints' lives) are the subjects of some moving pages. More broadly queens resembled their sisters in early medieval society in being essentially objects of use, seized, transferred and discarded as the diplomatic and dynastic needs of their own and their husbands' families dictated. But their history brings out more fully, at least in Pauline Stafford's hands, the strength as well as the weakness which was conferred

Peter Keating

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BOOKS

Women of property and power

Queens, Concubines and Dowagers: the King's wife in the early Middle Ages by Pauline Stafford Batsford, £14.95 ISBN 0 7134 4399 5 Women in the Middle Ages: religion, marriage and letters by Angela M. Lucas Harvester Press, £18.95 ISBN 0 7108 0348 6

At the diet of Rara in 984 Duke Henry the Wrangler of Bavaria signalled the end of his revolt by returning the infant emperor Otto III to his mother Theophanu, who ruled the empire on his behalf (describing herself as *consors imperii*) and his grandmother, Adelaide, who controlled vast territories in Italy in her own right, through inheritance and dowry.

It was as dowager queen mother and regent" Pauline Stafford remarks, "that a woman might hope for greatest influence", to such an extent that in those years women ruled the greater part of western Europe. They represent the apogee of this absorbing and strikingly original study, which ranges across dark age Europe, examining the queens of Merovingian and Carolingian Gaul, Anglo-Saxon England and Lombard Italy as well as imperial Germany with a clarity and mastery of detail which are equally remarkable.

The great strength of Dr Stafford's presentation is that by discussing her queens in relation to the stages of their lives, as "the bride to be", "the king's wife" and so on rather than biographically or chronologically, she avoids trivialization, and concentrates firmly on their role and function. The approach is one that would reward imitation – "Counsellors, Favourites and Followers" would make almost as valuable a sequel – and enables the author to extract an astonishing amount of illumination from the fragmentary and heavily biased sources from which she must write.

Here is the central problem in dealing with groups like women, whose members are the victims of prejudice, complacency or neglect. As Angela Lucas demonstrates all too clearly anything less than the most rigorous definition of the problem under review and the most skilful analysis of every text in the light not only of its author's general presuppositions, but of his (it is always his) particular circumstances and motives produces mere scissors and paste. For want of the technical expertise and intellectual firmness which these problems demand her attempt to bring together what the vernacular literature of medieval England reflects about the position and problems of women becomes an amiable but arbitrary series of generalizations on such topics as "the feudal wife", "the argument as limp as the conclusion that 'many women were neither regarded as useless, nor were they oppressed... and they were often accorded considerable responsibility'".

The relative wealth of surviving information about queens casts welcome light on some of the obvious concerns of women's history: the fear of sterility and the terror aroused by the illness of a child (though not the sexual brutality which is pointed up by some of the saints' lives) are the subjects of some moving pages. More broadly queens resembled their sisters in early medieval society in being essentially objects of use, seized, transferred and discarded as the diplomatic and dynastic needs of their own and their husbands' families dictated. But their history brings out more fully, at least in Pauline Stafford's hands, the strength as well as the weakness which was conferred

by their role as providers of heirs. The combination of frequent minorities (because kings were often relatively aged at the birth of their first legitimate children, as well as chronologically accident prone) with the absence of fixed rules of succession meant constant manoeuvre and intrigue in which the queen's control over the children and her access to the powers of the crown, and especially the royal treasure, gave her a central position; it also, of course, exposed her to the imputations of unchastity, vindictiveness and terribleness which so enliven the early chronicles.

Much of the case for women's history is that it is not just women's history: to ignore half a world is to misunderstand the whole. The most fascinating chapters of this book explore the role of the queen in managing the royal household, and particularly the treasure which is so persistently at the centre of political action right up to Henry's dash for Winchester after his brother was shot in the New Forest in 1099, and Stephen's after Henry's own death in 1155. "The personal nature of rule

made the court... the centre and symbol of the entire kingdom", and the queen's part in it, like her relatively aged at the birth of their first legitimate children, as well as chronologically accident prone) with the absence of fixed rules of succession meant constant manoeuvre and intrigue in which the queen's control over the children and her access to the powers of the crown, and especially the royal treasure, gave her a central position; it also, of course, exposed her to the imputations of unchastity, vindictiveness and terribleness which so enliven the early chronicles.

The queen, in fact, was much more than the king's wife. The title implied not only legitimate marriage (a complex idea upon which Dr Stafford has much that is important to say) and rights over property, but the exercise of defined and substantial powers at court. Asser's famous remark that the West Saxons had no queens until Charles the Bald insisted that his daughter Judith should be properly anointed and recognized on her marriage to King Aethelwulf marks a real change in political practice.

This study of queenship, in short, is also a major contribution to the history of kingship, to which it is now probably the best and certainly the most enjoyable introduction. It also provides a necessary, and fully worthy, companion to the recent work of Georges Duby on *Medieval Marriage and Le chevalier, la femme et le prêtre*. Duby has shown how the reorganization of noble families in eleventh-century Europe into patrilineal dynasties by the exclusion of daughters and younger sons from claims to inheritance, and the affirmation of the new restrictions on women through the exaltation of chastity and the cult of courtly love in the twelfth century were the essential foundations of the social and political order of Europe in the high Middle Ages. Now Pauline Stafford shows how the accumulation of property and power in the hands of women like Adelaide and Beatrice in the tenth century – and, she rightly suggests, not only queens – made that subjugation necessary, at least from one point of view. In doing so she reminds us again how much we need a serious study of the position of women – all women – in the Middle Ages. Now she will have to write it.

Textbook series are many in number, and it can be no mean task to find a fresh formula to justify a new one. One solution is to cut up the chronological cake in a new way, and for their "Foundations of Modern Britain" series Longman have chosen to start in 1370, with this first volume by Dr Thomson ending with Henry VIII's breach with Rome. The book is divided into short analytical chapters: it is pessimistically but perhaps rightly assumed that students can no longer take in more than eight pages on one topic.

R. I. Moore

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Essex and the civil war

The Puritan Moment: the coming of revolution in an English county by William Hunt Harvard University Press, £24.00 ISBN 0 674 73903 5

At the time of the civil war Essex was regarded as a leading county both in terms of its staunch support for Parliament – it was the "first born of Parliament" – and the ardour of its protestantism. It was also a rich county with a relatively advanced level of economic development, in which the notoriously precarious cloth industry played an important role in a predominantly rural economy.

From the late sixteenth century onwards, Essex society was becoming increasingly polarized with, at one extreme, a landowning aristocracy deriving most of their manorial income from rents and, at the other, the rapidly growing ranks of the landless and wage-dependent poor. The expansion of the latter resulted in a corresponding rise in anxiety about crime, social stability and the burden of social welfare among the parish and county elites.

The local aristocracy and gentry were relatively new arrivals both to the county and to their social status. The Riches were the pre-eminent county family but, denied royal favour, they did not enjoy commensurate political power until well into the reign of Charles I. Such a potentially fertile combination of religious, socio-economic and political features should have guaranteed Essex high priority in terms of research interest yet, with the exception of a broader study of the Eastern Association by Clive Holmes, the county has not been a beneficiary of the recent proliferation of county studies of the civil war.

William Hunt has more than compensated for this "curious neglect" in a work of boldness and imagination which, although occasionally prompting more questions than providing answers, sheds fresh light upon the causes and eventual outbreak of the English civil war. Dr Hunt makes a qualified return to the notion of a "puritan revolution" as he seeks explanations for the county's radicalism. "Puritanism" is initially defined in terms of its familiar religious preferences and intensity of conviction, making the distinction from orthodox Anglicanism prior to the 1630s problematic. However, having related religious beliefs to socio-economic and domestic circumstances, Hunt has chosen to lay particular emphasis on the puritan moral and social discipline upon its surrounding community, and their wider, distinctly grandiose conception of an imperialist destiny for England. The revisionists' disproportionate emphasis on localism is countered by Hunt's perceptive appreciation of the Imperialist ambitions of the second Earl of Warwick



This 10th-century German ivory carving shows monks preparing illuminated manuscripts. The picture is reproduced from Anne Savage's new modern English translation and collation of *The Anglo-Saxon Chronicle*, published by Phoebe Phillips/William Heinemann at £14.95.

and his associates, which harmonized so conveniently with a puritan crusade against Spain and the Anti-Christ. Imperialism, the puritan mission and an embryonic radical political leadership finally converged in that most visionary of colonizing ventures – the Providence Island Company.

Those who equated tyranny with popery found their worst fears confirmed in the combination of arbitrary taxation and ecclesiastical innovation during the Personal Rule, and, if further proof were needed, there was clear evidence of divine wrath in the form of failed harvests, trade depression and plague. In the crisis elections of 1640, Essex preachers energetically drummed up support for the opponents of court candidates. This was the county that sheltered some of the most famous puritan divines, like Stephen Marshall, whose voices were soon to resound from pulpits urging scriptural grounds for an active complicity

ment to Parliament.

Zealous parliamentarians were in a minority even in Essex when arms replaced words in 1642. Hunt agrees with Holmes that there was a significant body of neutralist, or even Royalist, opinion in the county. Essex was eventually secured for Parliament, first, by the prompt and decisive leadership of Warwick and his friends – secondly, by the fervent propaganda of puritan divines and, thirdly, by rioters, composed largely of weavers, rural artisans and the lower-middle social strata, who intimidated local Royalists, and coerced would-be neutrals. The book ends on a note of climax, with the descent into war. Personally I would have preferred a different balance to allow closer focus on party division and the initial response of conflict.

Keith Lindley

Keith Lindley is lecturer in history at the New University of Ulster.

A safe guide

The Transformation of Medieval England 1370-1529 by John A.F. Thomson Longman, £14.95 and £7.95 ISBN 0 582 48975 X and 48976 8

Textbook series are many in number, and it can be no mean task to find a fresh formula to justify a new one. One solution is to cut up the chronological cake in a new way, and for their "Foundations of Modern Britain" series Longman have chosen to start in 1370, with this first volume by Dr Thomson ending with Henry VIII's breach with Rome. The book is divided into short analytical chapters: it is pessimistically but perhaps rightly assumed that students can no longer take in more than eight pages on one topic.

This is not a work which deliberately sets out to challenge established orthodoxies: its tone is careful and moderate, its conclusions balanced and understated. The "transformation" of the title was not a dramatic one; the main development was that England was at the start of the period a major European power, with ample territories in France, but by 1529 had become largely insular. Serfdom vanished, and the yeoman came into his own in a countryside much changed by enclosure. Cloth replaced wool as the major English export. Government became increasingly secularized, even though it was dominated at the end of the period by one of the greatest of medieval clerics, Wolsey. The breach with Rome was not as sudden as often depicted, for the church in England had come under increasing royal control during the later middle ages.

The book's range is such that some aspects inevitably receive rather short shrift. Parliament deserves more than one short chapter. War was of great importance in the period, with lengthy campaigns in France succeeded by civil conflict, and costly military adventures in the early sixteenth century. Yet although there are eight pages on the economic effects of war, the question of the recruitment and organization of armies receives little attention, and so great a battle as Agincourt is dismissed in a sentence. Although the patronage and development of learning is discussed, the visual arts are not: a regrettable omission in a book on a period which witnessed the flowering of the perpendicular style in architecture.

There are, on the other hand, many strengths in Dr Thomson's treatment. He has a particularly sure touch in his discussion of the church, where he questions the view that this was a period of widespread anti-clericalism, pointing to the scale of chantry endowments and pilgrimages as indications of popular piety. Though some of the clergy were corrupt, the bishops and abbots emerge as honest and efficient administrators, though Dr Thomson has to confess that there is little evidence of any striking spiritual qualities. Lollardy was not a major threat, being confined to pockets of support drawn largely from artisans. Though it survived through the fifteenth century, it was not to provide the leaders of the English Reformation.

One criticism that can be directed at the book is not the fault of the author. The selection of 1370 as the starting point for a history of Britain makes little sense, as the frequent references back to the early fourteenth century show. It might have made more sense to start at least with Edward I, whose conquest of Wales and the wars with Scotland did much to set a pattern for British history for centuries to come. 1370 is not a significant date in the history of Britain, and it is not surprising that this book is in fact a study of England. The full British perspective will perhaps emerge in the later volumes of the series.

This is a skillfully constructed book, in which students will find many an essay topic conveniently dealt with. They will not find here a re-telling of the dramatic excitements of the later middle ages, but rather a safe guide to a difficult period, with eminently sensible conclusions based on a broad learning.

Michael Prestwich

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BOOKS

Magnetic fields

Introduction to Geomagnetism
by W. D. Parkinson
Scottish Academic Press, £27.50
ISBN 0 7073 0292 7

Based on a series of lectures to third-year undergraduates at the University of Tasmania, this excellent textbook successfully bridges the gap in the geomagnetic literature between specialized texts, dealing with one aspect of the subject, and general geophysical books which usually condense geomagnetism into a single chapter or less.

After an introduction on magnetic principles, observational instruments, and so on, Parkinson progresses from an analysis of the Earth's main magnetic field and its origins, to the local field (essentially the magnetization associated with the Earth's crustal rocks) and then to the external fields (that is, those fields associated with the upper atmosphere, solar wind, and so on). Induced magnetizations, mostly by the external fields, are then discussed before a concluding chapter on the history of geomagnetism, the relations between magnetization and biological organisms, and the organization of the International Association of Geomagnetism and Aeronomy (IAGA).

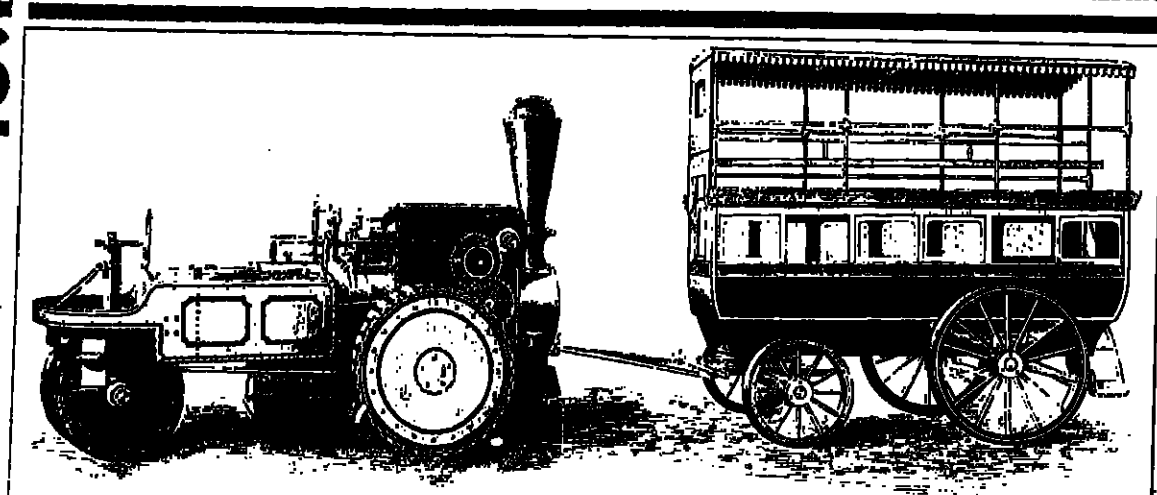
The book assumes a reasonable background in calculus, but most formulae are well described in physical terms in addition to their mathematical exposition. A series of appendices are included, mostly providing more detailed mathematical explanations and background to general items such as vector analysis, spherical harmonics, filtering, and so on. Parkinson avoids a pedantic style and the book is well referenced and indexed. The production is also generally good, although Parkinson's laudable desire to include pristine photographs and aeromagnetic maps should have been tempered by the publisher, who must have known that reduction makes these appear even worse than in their original form.

Certain important omissions suggest that there may have been a significant delay between completion of the manuscript and its publication. Although new discoveries in geomagnetism are now somewhat rare, the sudden world-wide acceleration in changes in the properties of the Earth's main magnetic field (secular variation) towards the end of the 1960s has now been well substantiated, yet this does not get a mention, despite its major importance. Comparison with changes in the Earth's rate of rotation and hence its implications for core-mantle coupling. However, Parkinson might understandably have not considered the acceleration to have been sufficiently substantiated some two years ago.

Such an excuse is not available for other omissions. Possibly the most important feature of the geomagnetic field is its ability to reverse polarity, yet only five million years is illustrated. More importantly, even though older polarity changes are mentioned, there is no discussion of the meaning of changes in the rate of polarity change with time. Has the geomagnetic field always shown the ability to reverse? Has the polarity change always been close to 180 degrees? How does the geomagnetic field behave during a polarity transition? Questions fundamental to any study of the nature of the geomagnetic dynamo, yet barely mentioned. Let alone discussed.

Strangely, although some data, albeit poor, are given on the magnitude of secular variation in the geological past, this is not mentioned. This scant treatment of such important topics must be contrasted with the 25 pages devoted to the analysis of economically important magnetic anomalies, which have little direct bearing on geomagnetism. A similar lack of judgment is also indicated by almost four pages on the structure of the IAGA. Surely it would have been much more relevant to discuss the magnetic fields of other planets in preference to such esoteric factors.

These deficiencies are, however, largely compensated by the author's largely comprehensive and very readable



Traction engine harnessed to an omnibus, an illustration taken from *The Engineer* (1871). From *A History of Industrial Design* by Edward Lucie-Smith, published by Phaidon at £20.00.

broad treatment, which gives equal weight to the aeronomic aspects that are often omitted from solid-Earth texts. The inclusion of Australian examples is also a welcome sight: this must be the first book on geomagnetism that does not illustrate the historical records from the London and Paris observatories.

My main reservation in recommending this book as an undergraduate text is that many geophysics courses are given within a geological context and to students who may not have the necessary mathematical background – a situation that is changing, as geologists become more numerate. I can, however, highly recommend the book for undergraduate and postgraduate geophysics courses that have a sound physics/mathematics basis.

D. H. Tarling

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Wild behaviour

Animal Behaviour: ecology and evolution
by C. J. Barnard
Croom Helm, £17.95 and £8.95
ISBN 0 7099 0636 6 and 0673 0

Until recently, there were very few introductory undergraduate textbooks on animal behaviour, but over the past two or three years several have been published. Of these, C. J. Barnard's book is one of the best. As its title implies, it is heavily slanted towards adaptive interpretations of animal behaviour in the wild.

In a series of excellent chapters, the author tackles many of the key issues in contemporary ethology – motivation, mate selection, foraging and optimality theory, contests, and coalition – and organizes his discussion of each topic very skilfully. In each instance he explains the underlying conceptual issues clearly, and although he presents a great deal of hard data he does so without obscuring the arguments that he is developing. Indeed, one of the author's strengths is his ability to link a whole series of complex arguments together in a sufficiently clear fashion for readers to know exactly where they are going.

Not everything, however, is above reproach. One of the most difficult decisions that an author of an introductory textbook on animal behaviour has to make is how much to include on brain anatomy, neurophysiology and sensory physiology. Each, of course, needs a book of its own, so there is a great danger: if one tries to do justice to them in a book on ethology, that the book will become too long and unbalanced. To go to the other extreme and leave out all mention of the brain and associated physiology would be equally perverse, even though I suspect many contemporary ethologists would scarcely notice their absence. Although Barnard sensibly aims to bridge the gap between these two extremes, the result is a very heavy going, primarily because he compresses his entire treatment of comparative brain anatomy and neurophysiology into a single chapter.

These deficiencies are, however, largely compensated by the author's largely comprehensive and very readable

ral organization, hormone action, perceptual mechanisms and rhythmicity of behaviour into a single, dense chapter at the beginning of the book. The pendulum has certainly swung away from the situation in the 1960s when evolutionary and ecological aspects of animal behaviour were relegated to one or two chapters at the end of long volumes on the physiological mechanisms controlling behaviour. Somewhere, there must be a happy medium.

The illustrations are also less than perfect. It is not simply that they are less lavish or beautiful than those in, say, S. A. Barnett's *Modern Ethology* (Oxford University Press, 1982) or J. Gould's *Ethology* (Norton, 1982), but that quite often the labelling of the diagrams and the captions are difficult to understand – certainly in comparison with the lucid main text that accompanies them.

Given that no two ethologists are going to agree entirely about what should go into an introductory textbook nor about how the topics should be treated, there were remarkably few places outside the first chapter where I wished things had been approached differently. One such place, however, was in the author's treatment of genes and behaviour. Although chapter three is devoted to the genetics of behaviour, and chapter four to the role of experience and other environmental factors in development, we must wait until the end of this chapter for any discussion of the theoretical issues underlying the role of genes and environment in behaviour. Such a delay is surely rather late for such an important topic. Also, nowhere does the author make explicit the reasons for the role of genes and environment in behaviour. One such place, however, was in the author's treatment of genes and behaviour. Although chapter three is devoted to the genetics of behaviour, and chapter four to the role of experience and other environmental factors in development, we must wait until the end of this chapter for any discussion of the theoretical issues underlying the role of genes and environment in behaviour. Such a delay is surely rather late for such an important topic. Also, nowhere does the author make explicit the reasons for the role of genes and environment in behaviour.

However, these are relatively minor quibbles about what is, overall, a fine book.

Neil Chalmers

Neil Chalmers is senior lecturer in biology at the Open University.

Computer networks

A Practical Guide to Computer Communications and Networking
by Richard Desautels
Ellis Horwood, Wiley,
£16.00 and £8.00
ISBN 0 85312 403 1 and 530 9

A decade ago, it would have been simple to write a short practical book on computer communications and networking. The only networks readily available were the Public Switched Telephone Network, leased lines from the equivalent British Post Office, and what high-speed (albeit at some times) all of which formed the basis of computer networks. Also, the protocols for these networks were being developed at this time were the formal conventions to ensure compatibility for the interchange of data between independent devices.

By 1978, however, more networks were available, certain protocols had become standardized, and the required

services more clearly defined. Substantial academic and industrial computer networks had been set up both in Britain and abroad, and there was increasing demand for relevant courses, for which there were few good general textbooks. Recently, however, a spate of books has appeared, varying from those describing only the National Public Telephone System and its going into very considerable detail on specific manufacturers' proprietary software.

This book claims to be a "practical guide to the implementation of computer software to communicate – with other computers and terminals". The general areas covered would seem to be useful (there are chapters on basic concepts, transmission of data, physical network techniques, implementation techniques, and protocols); and the chapter on physical network techniques has a section on packet switching, with subsections on the X25 standard, high-level protocols, transport service facilities, character terminal protocols, job submission and file transfer protocols – exactly the subjects I would wish to see in my course. However, I would have expected this to have been followed by a detailed critical discussion of the standardized protocols, but instead this topic is dismissed in a scanty seven pages.

By contrast, 36 pages are devoted to the family of protocols used at the Edinburgh Regional Computer Organization (RCO) – protocols which do not have a wide following and which have somewhat limited features. Although the decision to devote so much space to these specific protocols would be understandable in a course given in the region covered by the RCO, it is less clear why this treatment would be of much interest to others elsewhere; and the author makes no attempt to relate the salient points of the RCO protocols to those more commonly encountered. However, the introduction to this chapter, describing how the RCO network looks from Strathclyde, does provide the reader with an early and valuable insight into how and why networks are used.

Most of the next 50 pages is taken up with a description of codes, use of the telephone network, interfaces, and network technologies, all of which are treated better than in many other books. The author's obvious desire to provide a practical content to his course has led to a useful chapter on the role of the PDP-11 computer in connection and to the specific one on protocols. Although I would not have chosen that specific subject-matter in my course, these chapters do hang well together.

There are, however, some serious omissions – terms not listed in the index include congestion or its control, flow control, sequencing, time out error (though there is a brief discussion of some errors, but not in any depth). Although the preface mentions that "two popular local area networks systems are described", the treatment is very superficial.

The author has tried to concentrate on a practical book. Indeed, he states that "all the communications software for the systems described have been personally implemented". Although the subject he is describing, it does lead to the uneven and patchy coverage of the subject areas that I have indicated.

Peter Kirstein
Professor Kirstein is head of the department of computer science at University College London.

Swimming techniques

Fish Locomotion
by R. W. Blake
Cambridge University Press, £29.95
ISBN 0 521 24303 3

The swimming of fishes presents a great many problems, only some of which have been solved. For example, we know why most fishes have a striped dark muscle along their sides (it is used for prolonged swimming, and the rest of the fillet is used only for bursts of speed) but we do not understand why the fillet is divided into complicated W-shaped segments.

Measurements of oxygen consumption have told us how much power is needed for swimming at different speeds, and we can also calculate power requirements from observations of tail movements. Although estimates of power obtained in these two ways agree, we have only the beginnings of an explanation of why so much is needed – several times the power that would be required to propel a rigid, fish-shaped body at the same speed.

We have very limited understanding of why fish have different shapes: long and thin, short and fat or flattened from side to side. Although there have been many suggestions that details of the shapes of fast-swimming fish such as tunnies are adaptations for speed, most of them are speculative. We do not even know reliably how fast tunnies can swim.

A theory has been put forward that is designed to show how fish could save a great deal of energy by swimming in shoals instead of separately. Shoaling fish, however, swim much faster apart than the theory says they should. All these problems (and many others) are discussed in this book – albeit briefly, but well – by an established authority on fish swimming and the leading authority on swimming by movements rather than by movements of the whole body.

Many non-specialist readers will be disappointed, however, that Dr Blake has designed his book for research workers in biomechanics and advanced undergraduates – that is, those who have "a working knowledge of mathematics and biology". He has therefore assumed that readers will already be familiar with many families of fish, and can follow arguments involving straight-forward calculus with the minimum of explanation. As it does not, however, expect much previous knowledge of hydrodynamics, an introductory chapter gives a remarkably comprehensive and succinct outline of the hydrodynamics used in the book.

Subsequent chapters discuss swimming muscle, swimming performance, the mechanics of various kinds of swimming, the control of swimming, optimum swimming strategies, and a few other related topics – each chapter being preceded by a brief statement of its contents. Although the book is mainly a review of work published elsewhere, it also outlines a new theory of swimming techniques in which the fins of certain fish are coupled like wings, a theory which could be equally applicable to penguins and marine turtles.

As the book is only 200 pages long, it cannot explain in full everything we know about fish swimming, but the readers for whom it is designed will nevertheless find it a very useful summary.

R. McNeill Alexander

R. McNeill Alexander is professor of zoology at the University of Leeds.

A third edition of Norman V. Rothwell's introductory textbook *Understanding Genetics* has been published by Oxford University Press at £17.50.

A second edition of *ADA: an introduction* by Henry Legard has been published by Springer at DM29.80. Based on the summer 1982 version of ADA, which was submitted to the American Standards Institute for their approval as the final version, the volume does not, however, contain the reference material published in the first edition (reviewed in *THE TIMES* of 4th Dec. 1982).



Commonwealth universities today

A SPECIAL REPORT

Next Wednesday however many buses it takes will transport the 600 delegates to the thirteenth Commonwealth Universities Congress and maybe another 200 spouses and guests will drive from the University of Birmingham to Ironbridge on the Severn in Shropshire.

There the assembled vice chancellors, registrars and chairmen of councils, who will be in the middle of discussing the difficult but highly relevant theme of the congress – the role of the university in technological innovation, will be able

to observe the relics of the technological innovation of two centuries ago, which was accomplished without much help from universities.

Some may mumble under their breath, "Plus ça change, plus plus la même chose." But perhaps the majority will reflect on how central the scientific knowledge generated in universities has become to the process of industrial innovation and how this responsibility has made them prisoners of expectations that would have been unthinkable back in the early days of the industrial revolution.

The theme of the congress has been subdivided into five topics – the social consequences of technological innovation, presided over by Sir Bruce Williams, director of the Technical Change Centre and former vice chancellor of the University of Sydney; the contribution of universities to integrated rural development, presided over by Professor R. W. Steel, former principal of University College, Swansea; university/industry partnerships, presided over by Sir Henry Culver, vice-chancellor of Cranfield Institute of Technology; the development and transfer of technology,

presided over by Sir Denys Wilkinson, vice-chancellor of the University of Sussex; and continuing education, presided over by Dr John Horlock, vice-chancellor of the Open University.

To mark the thirteenth congress *THE THES* is publishing this special report which has the dual purpose of exploring the themes of the congress and of reporting on the condition of universities in nearly every Commonwealth country. It begins with Sir Henry Culver on the most basic question of all, higher education in the real world.

Preparing for a role in the real world

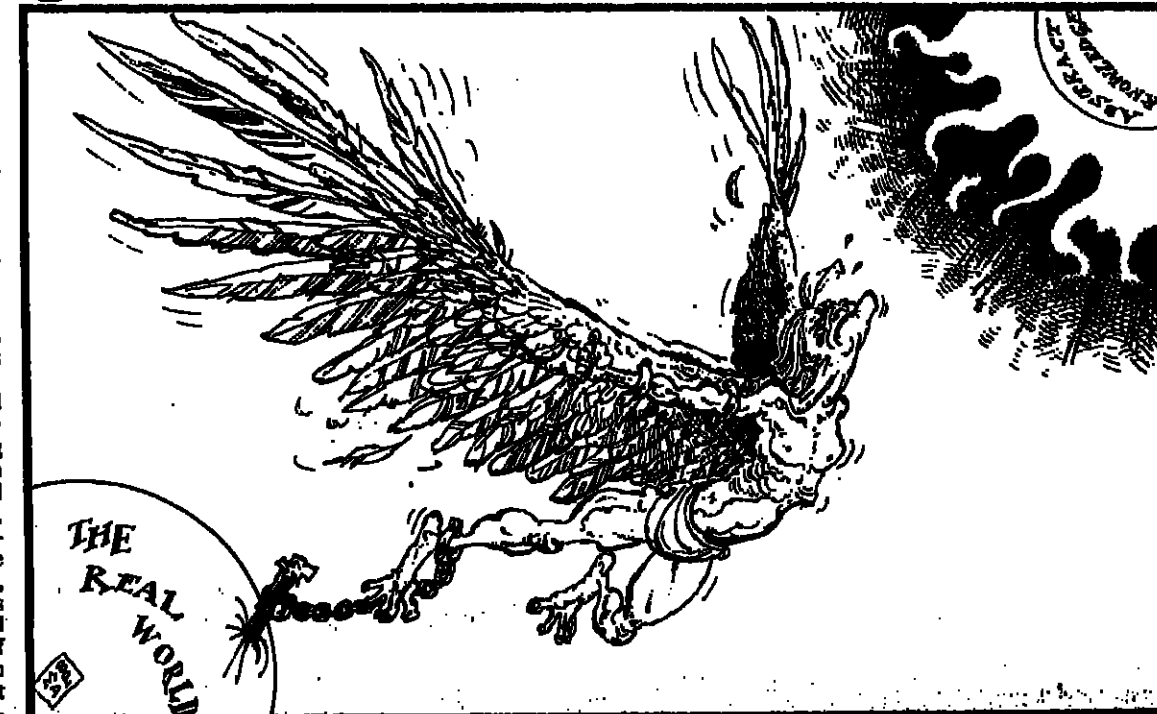
The role of higher education in society has undergone very considerable evolution over the centuries. In western societies, it probably reached its most rapid evolution – and expansion – towards the end of the last century and in the first half of this century. During that period, the developing styles of higher education in Europe were adapted to the North American scene, where they played a key role in economic and social development of that continent. During that period, the patterns of western higher education were also followed – but with less economic and social impact – in less developed parts of the world.

Much of the expansion of world higher education, to its present scale and diversity, is due to the strong pressures for high levels of education in areas of practical and professional relevance. Medicine, applied sciences, technology, engineering, and professions – such as the law and architecture – are all examples of this. As a result, higher education on the world scene is oriented strongly to vocationalism and to studies – including research – of practical relevance. In some western European countries, the movement towards higher education having greater practical relevance was marked by the development, particularly during the nineteenth century, of special institutions. The technical universities of Germany and the special high-level institutions of France are examples of this, and these in turn have been copied in other countries.

In Britain, where higher education is developed largely through universities and polytechnics, these two groups of institutions – taken together – offer a wide range of studies and research of practical and professional relevance. But, whereas in many parts of the world this is taken for granted – and indeed forms the whole basis of policy in national higher education – in Britain it is a not uncommonly-held view that practical and professional relevance are not so much central as peripheral to higher education policy; it is often argued that excellence in the practical arts and professions can be achieved by the spin-off effects of more rarefied and "purer" studies in higher education.

As a consequence, institutions of higher education in Britain do not play the central roles in our society as do similar institutions in other countries. Except possibly for the field of medicine, professional qualifications in Britain are linked relatively loosely to the qualifications in higher education. By contrast, in Germany and France, for example, institutions of higher education are central to the professional system in key areas of the society.

The role of higher education in any modern society, is to develop – at the highest levels of the educational system – centres of generation of ideas. This generation of ideas must be conducted against the background of genuine understanding of the real world – as



exploited in the sciences, medicine, technology, economics, history, literature, and so on. This genuine understanding will be lost if institutions of higher education lose those links with the real world which provide stimulus for study and research.

It is surprising, therefore, that there is really any need to justify the importance of links between higher education and the real world. Indeed, it is largely in countries in which these essential links have been eroded that we find the need to argue for such links. In Britain, the expansion of higher education since the 1950s has tended to reinforce the intrinsic role of higher education rather than strengthen or advance the case for links with the world outside. This is now posing a whole set of fundamental questions about present policies of higher education, and particularly about how young people can really benefit from these policies.

Among the topics for discussion at the Commonwealth Universities Congress in Birmingham this month, the discussions on university/industry links have raised considerable interest. In some countries of the Commonwealth, notably Canada, these links are strong. In others – and not least in Britain – these links are relatively weak. The discussion at the congress has been structured to enable delegates to present their own case studies of successful links, and this has drawn wide interest among the delegates from all countries. All this shows very clearly the importance university leaders attach to the links with the real world. These are encouraging signs, and it is worth thinking about the ways in which these links are so vital for higher education, for students, and for society more

Most students in higher education will pursue their later careers in the professions, commerce and industry – both private and public. It is true that some will remain in the educational generally. profession – some even in higher education – but the majority will develop their lives and careers beyond the world of higher education. Higher education can only largely prepare young people for their real world roles, and this preparation must be concerned with essential basic knowledge and ideas. But these are not likely to be wholly effective unless teachers understand the real world scenes against which they are teaching. This is most obvious in areas such as medicine, but it is equally true, for example, in all fields of engineering and technology, in which students genuinely expect teachers to help them develop their basic knowledge against the background of the real worlds of engineering and technology.

In other words, basic studies in higher education do not stand in complete isolation. Indeed, the initial higher education of, for example, doctors, engineers and architects, is incomplete if the creative interests of students are not stimulated by basic courses. The importance of links between such areas of higher education and the real world is therefore self-evident. What is not so evident is that because many students, taking more general studies in higher education, also later pursue careers in the real world, there is also a need to link such broad basic studies more closely with real world activities. For example, it is critically dependent on the ways in which basic higher education of chemists, biochemists and scientists

relates to the potential for exploitation of these ideas in industrial technology. Research apart, there is therefore a very strong case for real-world linkages to enhance teaching in higher education and to give such teaching greater credibility to students who inevitably will be searching for greater relevance of their studies.

Institutions of higher education, as well as being concerned with teaching, are also centres in modern society for the generation of new ideas. Ideas and concepts in the sciences are self-evident. At the same time, centres of higher education generate ideas of wider relevance – economic and social issues, the study of history, and the whole gamut of the arts. Research itself has little value if researchers have limited contacts with real world problems. Moreover, the advancement of practical fields is possible only by tackling the basic problems of those fields. In this sense, knowledge and understanding by researchers of practical fields is essential. If these researchers are to identify basic problems which need to be solved. In this way, we can see that basic research can be strengthened through links with the real world. The practical world itself welcomes such links, because the development of practice is very dependent on the successful use and exploitation of new ideas and concepts.

We see, then, that links between higher education and the real world are important for both teaching and research. Such links occur already of course in diverse ways, over wide areas of teaching and research. But more particularly, what forms are taken by links between higher education and industry? We must see "industry" in this context, as those areas of modern

society which are exploiting the most modern concepts of science and technology. These can be exploited not only for production purposes but for a whole range of situations in which science and technology contribute to change and evolution: in medicine, for example, through the use of modern ideas in the bio-sciences and many other areas of science; in the management and control of environment; in distribution industries; and in telecommunications.

The linkages needed are not just those with private industrial organizations – important though these are. In teaching, linking with industry can help higher education establish more diversity of course offerings. It can also lead to cooperative programmes, in which students divide their study and experience between higher education and industry in a structured way. In this, the student may be supported financially by industry – in the style of sandwich courses. At a more sophisticated level, linkages with industry can help higher education develop short, advanced courses for single organizations, for groups of organizations, or more widely.

In the whole area of linkages in teaching, Britain is relatively weak. Universities concentrate their teaching activities on three-year full-time degree courses. Although there are numbers of successful industry-related teaching courses, as a whole these constitute only a small part of university programmes. The polytechnics in Britain were intended to develop strong links, particularly with local industries; here again, although there are numbers of successful industrial programmes, polytechnic teaching has strong elements of traditional-style degree courses. The result is that we need to make considerably more progress in bringing higher education closer to industry. Ways of improving research links in Britain are discussed extensively in a recent ACARD (Advisory Council on Academic Research and Development) report.

A key linkage with the real world is, of course, the graduate of higher education. This is used extensively in North America, and generates feedback and resources for the parent university. It is particularly weak in Britain, where there appears to be no organized feedback and where graduates generally play very limited roles in the generation of new resources.

The styles of research links with industry are diverse. In most advanced countries, research tends to be concentrated in those centres of industrial technology which have the resources to support research programmes. As a result, the larger industrial organizations tend to form close links with relevant research centres in higher education. Such links may frequently be international in character, because the largest industrial organizations are

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of course keen to exploit the most relevant ideas wherever these are generated. But much innovation in industrial and technological society is generated initially through small organizations. Higher education – in pursuit of innovation – must therefore seek ways of linking with small organizations.

This can be achieved in a number of ways, through higher education itself becoming more pro-active in generating these links. At the same time, higher education should encourage staff and students to set up small organizations to exploit new ideas. In this way, the movement of people from higher education into newly-created small organizations can make probably one of the most important contributions to modern societies.

Beyond teaching and research, there are many other forms of industry links. Consultancy by staff is often quoted as an important linkage, but the scale of this generally in higher education is relatively small. Play is made by some institutions of higher education of the value of testing and research services to industry; such services are sometimes offered to industries at marginal costs, since the capital costs are borne by higher education; not being pro-active, these types of services will generally run at low levels, since higher education is not likely to be funded at levels which allow for the growth of such services.

Higher education is used increasingly, in a number of countries, to provide advisory centres, usually subsidized by government, to accelerate innovation in industry. Some of these have proved very successful, and such centres will probably continue to be used.

Science and technology parks – for some decades a feature of North America – have attracted much interest in Britain. These are most successful in situations where the environment is one which will attract new small organizations in areas of the "most modern ideas". The ingredients of attraction include not only the physical surroundings but ready availability of highly-skilled and innovative people who by the nature of the advanced work maintain close links with higher education.

In general, the advantages of close links between higher education and industry, commerce and the professions are that, in developing such links, higher education itself has a wider understanding of the workings more generally of modern society. The pursuit of such linkages could lead to quite profound changes in higher education. Any institution of higher education must of course form its own independent view of its role in our highly complex society. There are increasing signs, though, that higher education institutions are thinking more carefully about their roles in relation to the world outside. As a result, such centres of higher education will almost certainly move closer to industry, commerce and the professions.

A number of advantages will flow from this. Teaching programmes will

become more relevant and diverse. Their greater relevance and diversity will attract discerning students. Research and development work will become more multiply-funded, reducing the researchers' dependence on a single, public funder.

Purists – both inside and outside higher education – will argue that higher education should aim only to do a job of basic education of young people; they will argue that, if that basic education is sufficiently broad, young people will have a framework within which to pursue their careers in developing fields. It is worth examining this argument carefully, because few would dispute the importance of broad higher education, at a basic level.

The weakness in the argument lies not, in fact, in pressing for broad basic higher education, but in how this can be achieved. The experience of higher education, in many countries, is that determining the breadth of basic studies in an isolated way, remote from centres of industry, commerce and the professions, leads to an unresponsive education system. Mechanisms are needed to generate more rapid and more effective responses to the changing scene of the world outside higher education.

But are such links in danger of undermining the academic independence of universities? Indeed, I would argue quite the reverse. If, for example, we look at the higher education scene in North America, we see very clearly the enormous contributions made by private universities to the most advanced academic ideas in many fields. Indeed, in Britain those universities which have made some of the most important contributions to the basic sciences and the arts are those which are in fact most strongly supported by industry and commerce. Clearly, it is important that institutions of higher education should not vie with commercial organizations. Linkages with the outside world are to be seen not as attempts to behave commercially but as an essential part of higher education which will enable it to perform a more effective role.

The congress in Birmingham will enable universities from the Commonwealth to compare notes on links with industry. The nature of these links throughout the Commonwealth varies very considerably. Different countries have very different social, economic and educational problems. It is very encouraging, though, that this wide range of university-industry partnerships has proved of such interest, and there is a real opportunity to develop a wider understanding in the community of Commonwealth universities of this vital aspect of university policies.

Improving research links between higher education and industry. ACARD Report, HMSO June 1983.

The author is chairman of the topic discussions on "University-Industry Relations" at the Commonwealth Universities Congress in Birmingham.

Henry Chilver

Technology's social consequences

Bruce Williams
comments on the
impact of
innovation

Technology consists of the practical arts of producing goods and services. Technological innovation is a change in one or more of the practical arts which increase our capacity to produce.

Innovations vary in their economic and social impact. The steam engine had a major impact. It freed manufacturing from the limitations of water power, and in its extension to land and sea transport transformed the size of the market and so promoted greater division of labour and wealth.

Marx, impressed by the significance of new forms of power, wrote that "the hand mill gives you the society with the feudal lord; the steam mill, society with the industrial capitalist", and he wondered whether electricity would be the new form of motive power that would give us a socialist society. Many years later Lenin gave electric power an important role in social change when he adopted the slogan "soviets plus electrification equals socialism".

Electricity certainly had major economic and social consequences. Computers and microprocessors may well also have major economic and social consequences. But there are many technological changes of great importance which are not the result of a major innovation but of a series of many innovations and incremental improvements.

For the first industrial revolution in Britain, which we tend to associate with innovations in smelting, textile machinery and Watt's steam engine in the last third of the eighteenth century, an essential prelude was cultivation and animal husbandry brought substantial increases in the quantity and quality of food and made possible an increase in population of 40 per cent between 1750 and 1800 – a very high rate of increase at that time, and to Malthus a dangerously high increase. But such was the increase in productivity that the proportion of labour needed to produce food came down, and the growth of industry was not hampered by a shortage of labour.

Industry then contributed to further innovations in agriculture. Over the years the engineering industry has supplied farming with new or improved labour, increased the proportion of sowing and harvesting done in good conditions, and made possible an increase in the area of land under cultivation. The chemical industry has provided synthetic fertilizers, insecticides, fungicides and herbicides. The scientific instruments industry has extended the capacity of agricultural scientists to observe, analyse and experiment, and greatly increased the productivity of their research into higher yielding soils, plants and animals.

Between the beginning of the Christian era and 1750, world population did not increase by more than 5 per cent per 100 years. But as a consequence of cumulative improvements in the technologies of food production, advances in medical technologies and preventive immunization, life expectancies have increased and world population is now about six times greater than when in 1750 Malthus published his first essay on population.

Just how much more population could become before reaching the Malthusian checks of war, famine and disease is a matter on which experts disagree. Some argue that we are near the limits and that deforestation, soil erosion and over-fishing are already shrinking the resource base of the world economy. Others argue that further advances in the sciences and technologies of agriculture should make it possible to support at least twice the present population.

But what is to stop a more than two-fold increase in population? In the industrialized countries the reduction in death rates was followed by reductions in birth rates. In Western Europe, Canada and the US, Australia, New Zealand and Japan, crude birth rates now average under 15 per 1,000 women. In the less developed countries, however, the rates are much higher: 28 in China, 37 in India, 45 in Pakistan and almost 50 in Bangladesh and Nigeria. Economic development programmes and family planning

are to speed increases in material standards of living, will bring these rates down. There are already signs of such a decline and some demographers expect world population to stabilize by 2100 at about twice its present level. Despite the great increase in population and food supplies, the proportion of the workforce engaged in agriculture has fallen. Whereas before industrialization, employment in agriculture tends to be around 60 per cent, in Britain the percentage is now less than 3, and less than 7 even in food-exporting industrialized countries such as the US, Canada and Australia. Rural depopulation and urbanization are two of the most important consequences of industrialization.

Another important consequence of technological innovations is continuing change in the occupational distribution of labour. A considerable rise in the proportion of labour employed in secondary industries follows industrialization. But beyond a certain high level of development the proportion employed in industry also falls, though nothing like as sharply as in the primary sector. But even between 1960/66 and 1974/80 the percentage of the workforce employed in the secondary sector fell from 35 to 31 in the US, from 38 to 33 in Australia, from 47 to 40 in the UK and from 48 to 46 in Germany.

In the industrialized countries employment in the service sector – which includes education, public administration, health services, insurance, banking, retail distribution and transport – has risen. By 1974/80, the percentage employed in services had risen to more than 60 in the US, Canada, Denmark, Norway and Australia. The average for the OECD countries rose from 45 in 1960/66 to 55 in 1974/80.

For the last 200 years there have been fears that new technologies would create technological unemployment. Much labour-saving equipment has been installed – in Britain labour required per unit output has fallen by at least four-fifths in the last hundred years. New technologies have made many traditional skills redundant, reduced employment in the old industrial areas, and generated fluctuations in rates of growth and employment.

After the Second World War there was an unusually long period of full employment with unusually high rates of growth in output. There were hopes that Keynesian full employment policies and much higher rates of expenditure on research, design and development had created a new era of high and stable growth. But those hopes were dashed 10 years ago by the decline in growth rates and the rise in unemployment.

Fluctuations in growth rates and employment are a very important and costly social consequence of technological innovations.

So far at least there has not been a secular increase in technological unemployment. The explanation of that apparent paradox is that new technologies have labour-displacing effects as well as labour-replacing effects, and that the net labour-displacing effect of innovations has been matched by reductions in hours of work per year and years spent in the labour force.

Product innovations generate employment. So too do process innovations that reduce labour per unit output by say, 10 per cent, but through reductions in price or improvements in quality increase demand for the product by more than 10 per cent. In some cases, labour-saving process innovations are followed by very large increases in output and employment. Until recently this was the case with motor cars. But as with cars so with other office-new products, process innovations eventually reduce employment and the flow of new products has not been strong enough to offset the effect. So – apart from their effect on population – the net effect of innovations has been labour-saving.

Over the last 100 years in Britain, each 4 per cent increase in hourly wage rates for males has been followed by a 1 per cent reduction in hours per year. Increases in incomes have also been followed by reductions in the age of retirement, and by increases in pre-employment education and the age of entry to the labour force. Since 1871, male hours of work per year have fallen by 36 per cent and years in the labour force by 17 per cent.

Hours worked per year by females have also fallen. Years in the labour force also fell between 1871 and 1921, but after that, and in particular after the Second World War, the labour force participation rates of married women increased and average years in the labour force are now 50 per cent higher than in 1871. That is a consequence of technological innovations which have reduced domestic labour and the size of families, and greatly increased formal education for females.

The combined effect of changes in hours per year and years in the labour force since 1871 has been a reduction in life hours of work since 1871 of 45 per cent for males 25 per cent for females and 40 per cent for all workers. The average annual change has been small. But in the future labour-saving process innovations grew significantly relative to product innovations, the dangers of serious unemployment of new entrants to the labour market, and of older workers displaced by technical change, would increase. Preventing a secular rise in technological unemployment would require a rise in the trend reduction of years in the labour force and in yearly hours of work.

Major changes in patterns of expenditure have also followed increases in wealth generated by innovations. Households have maintained their children in education for longer periods and increased expenditures on durable consumer goods, health services and retirement schemes. In response to the aspirations of more affluent households and the rise in the taxable capacity, governments have increased expenditures on education and research, hospitals, and the social services including pensions.

The marked increase in government expenditures relative to the gross national product has been a major factor in the growth of the service sector. The decline in the rate of growth in output and the increase in unemployment in the last 10 years have created major budgetary problems in the western democracies and had a bigger impact on employment in the service sector than has the "mighty micro".

Another important social consequence of technological innovation and the growth of population and production is the increase in environmental pollution. The problems of pollution arise in part from the failure to appreciate the way pollution of the air, land and water cumulates, and in part from attitudes that known effects are a reasonable price to pay for growth. The desire to check environmental pollution rises with increases in wealth.

Innovations in weapons of war have been so remarkable that the basis of civilization could now be destroyed in a few hours. Their very existence will continue to induce a brooding sense of danger and insecurity. We could live much better with modern technology if all nations desisted.

Technological change has brought many great benefits as well as some dangers. The benefits would be much greater if, by inventing the science of prevention, we became able to control innovations; by we learned how to integrate technology policy and employment policy; if we made a policy on life hours of work part of employment policy; if we could make our pre-employment and post-employment education more effective and relevant, both to the changing needs of the labour market and the growing proportion of life time not spent at work; and, more difficult than inventing new technologies, if we could learn how to treat our "near" and "far" neighbours with kindness and concern.

The author is director of the Technical Change Centre and former vice-chancellor of the University of Sydney.

Harnessing development to specific objectives

K. L. R. Pavitt on the transfer of technology

The development and international transfer of technology (i.e. of knowledge of the industrial arts) have long been recognized by historians and others as central characteristics of economic, social and political change. Over the past 20 years, economists have also come to recognize them as important determinants of international patterns of production and trade. As a consequence, firms, governments and international organizations have started explicit policies to try to harness technological development more effectively to economic and social objectives.

Perceptions about policies for technology have shifted since the late 1960s: national patterns of development and transfer of technology have changed markedly since then; experience has accumulated in the implementation of policies; and there is now a substantial body of scholarly research on the development and transfer of technology in both the industrialized and the developing countries.

All these features were apparent at a recent conference on international technology transfer in New York. My view is that the shifts have been particularly marked in three respects: first, there is a clearer understanding of the nature of technology and of the factors associated with its successful development and use; second, there is a greater recognition of the variety and complexity of channels of international technology transfer; third, there is a better knowledge of the nature and international distribution of capacities for technological development.

We now have a clearer understanding of what technology is, and how it is developed and transferred. Most important is its highly differentiated and specific nature: knowledge about steel production is largely specific to steel production, and is very different from knowledge about developing, testing and making pharmaceutical products. At the same time, improvements in specific technologies draw on wide ranging knowledge sources – from published science to unwritten skills in operating production processes whose fundamentals are only partially understood.

Thus, technology cannot be equated with science. The former is eclectic and concerned with making specific artefacts work, while the latter is focused on and concerned with making generalizable theories. The two overlap when focused theories help predict or understand the working of artefacts (e.g. chemistry and the properties of materials), and when they actually enable the development of a new range of artefacts (e.g. chemical and biological synthesis, electromagnetism, solid state physics).

Some scientific disciplines have typically been closer to technology than others, while some technologies have been typically closer to science than others. But in all technological and industrial sectors, the most expensive activities in developing technology are not scientific research, but the technological development and testing, and the production engineering activities necessary to transform an experimental concept into a fully operational product and production process, and to continue to improve and adapt it thereafter.

Given the differentiated and specific nature of technological applications, efficient development and production engineering activities depend on a thorough understanding of the eventual users' needs. Close and continuous contact between those developing and those using a technology is therefore necessary, whether it be a new or better machine tool, or a new or better strain of crop. In industry, this generally means that technological development is best performed within the same firm that does the producing and selling. In agriculture, it means the experimental stations, demonstrations and advisory services for farmers are essential features of efficient technological development. In general, it has meant that policies to establish applied research and development laboratories in isolation from users have not on the whole been successful.

It is misleading to think of a "world pool of technology" into which firms can dip and freely and easily dip,

in order to extract the knowledge and skills that they need. There may be a "world pool of science" which is, in the narrow sense, freely available. But parts of this scientific pool become technology only through combination with other knowledge sources, and after heavy expenditures on development and production engineering.

In addition, given the differentiated and specific nature of technology, firms and countries cannot obtain and exploit technology without costs to themselves. Even if the technology is acquired from outside sources, its effective assimilation inevitably entails the acquisition of new skills in the assimilating institution, and some modifications of the products and processes to specific conditions.

The differentiated and specific nature of technology also constrains and defines the range of technologies that a country or a firm can exploit, either through intra-mural development, or through assimilation from outside. They are more likely to master technologies that are in zones close to the ones that they have already mastered.

While, at one extreme, it is mistaken to think of a freely available "world pool of technology", it is also mistaken to think that most technology is controlled by a few large, multinational firms who can effectively decide, through their international production operations, which countries will have access to technology, and which will not.

Japan has probably been the most successful country in assimilating foreign technology, but it has traditionally had very restrictive policies towards local production by foreign multinationals. In the UK, where policies are

more liberal, local production by foreign multinationals has accounted for only between 15 and 20 per cent of the new technology introduced into the UK since the war.

Given that, over this period, the UK produced between 10 and 20 per cent of the world's new technology, between 60 and 70 per cent must have come to the UK through other channels, such as licensing agreements between independent firms, imports of production equipment embodying new technology, and the international migration of industrial scientists, engineers and technicians.

There is some evidence to suggest that a very important means of international technology transfer is "reverse engineering", where imitating firms take to pieces and try to understand the workings of product innovations developed in other countries, before designing and developing their own products. According to a study of more than 200 significant innovations commercialized in Canada, about half the imitations of foreign technology were through this channel. It is likely that the skills and equipment necessary for efficient "reverse engineering" are very similar to those necessary for the production of original technology.

In the 1960s, the emphasis on the importance of multinational firms in developing technology, and on their supposed effectiveness in controlling and diffusing it beyond national boundaries, led many observers to predict that countries with large and established multinational firms would build up cumulative technological and productivity leads over their international rivals. In particular, the USA would widen the technological gap

between it, on the one hand, and Western Europe and Japan, on the other. More generally, the industrially advanced capitalist countries would widen the gap between them and the developing countries.

The reality has turned out to be rather different and more complicated. Contrary to the prediction, Japan and Western Europe have, on the whole, closed the technological gap with the USA, but some countries have been more successful than others: West Germany and Japan, for example, have not just caught up, but have overtaken the USA in some sectors, while the UK has, on the whole, continued to lag behind. Both the overall process of catching up and the differentiated performance of the catching up countries can best be explained in terms of their indigenous technological capacities. For example, Germany's capacity had already been at the world frontier before the war, while Japan had had a conscious and energetic policy since the late nineteenth century of catching up to the world technological frontier, and began to reach it in the 1960s.

Perhaps more unexpected, but of greater long-term significance, has been the assimilation of foreign technologies associated with the so-called newly industrializing countries (NICs), principally in South East Asia and Latin America. This is reflected in their increasing production and exports. A number of recent studies show that the NICs have developed the skills to assimilate and use foreign technology, and both to adapt it to local

conditions and to make incremental improvements. These are not reflected in high levels of industrial expenditure on R and D activities that would enable major technological improvements, but in increasing skills and resources in the design offices, production engineering departments and quality control services of industrial firms in these countries; the existing range of statistics on science and technology measure these technological activities only very imperfectly.

The countries of the Commonwealth are at all stages of technological development: from the mature industrial (UK), through the high income countries with strong technological capacities accumulated around their natural resources (Australia, Canada, New Zealand), to the NICs of Asia, and the largely subsistence economies of Africa.

It is difficult to identify what they have technologically more in common than any other group of countries. Perhaps their pattern of technological skills still reflect to various degrees the long-standing British strengths and weaknesses: relative strength in technologies based on science, such as electronics, chemicals and agriculture; relative weaknesses in technologies based on design and production engineering.

Such patterns are likely to become less evident in future. Commonwealth countries are bound to rely to an increasing extent on sources of advanced technology other than the UK: witness already the influence of US technology in Canada, and of Japanese technology in Hong Kong and Singapore. They will also develop their own technological traditions and capacities.

The author is senior fellow and programme leader at the Science Policy Research Unit, University of Sussex.

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COMMONWEALTH UNIVERSITIES TODAY

A decade or two ago it was generally assumed, at least in Britain, that the traditional pattern of formal education, from primary through secondary to higher education, was capable of anticipating and responding to the changing needs of society. It was felt that the rapid expansion of educational provision in the universities would equip graduates with the necessary expertise to harness the technological revolution. It is now abundantly clear that this optimism was misplaced. Far from leading the new industrial revolution, we are lagging behind it.

In a rapidly changing economy, the necessary changes in occupational structure cannot await the slow realignment of provision in the schools and the universities. Much of the knowledge acquired during formal education will not retain its relevance 20 years later. It is by making an immediate impact on mature adults through continuing education courses that we have a chance of keeping abreast of new developments. And continuing education also has an important role in helping people adapt to changing roles in society, in widening their interests beyond the workplace.

However, in Britain, the provision of part-time continuing education courses is now becoming well-established in our universities. About 500,000 people are registered as part-time continuing education students with extra-mural or other university departments. In addition, 100,000 students are now taking part-time courses at the Open University, though they are not all in our sense continuing education students. A large majority (some 65,000) are "regular" undergraduate students and a small minority (about 350) are part-time postgraduate students. We say the remaining 35,000 students are in continuing education — those who take non-degree courses or by instructional packs. These range from short sub-degree level courses and learning materials through individual courses drawn from the undergraduate programme, to "taught" postgraduate courses for professional updating.

More recently, existing provision has been given a major fillip by the Government's proposals for further growth in vocational continuing education. The Committee of Vice-Chancellors and Principals has warmly welcomed these proposals, and British universities see themselves contributing increasingly to professional, technological and commercial education through part-time education for adults.

Yet the universities' conversion to such subjects and such students is sometimes doubted. Cynics say that dons do not like to be diverted from the green pastures of their own discipline-based research interests and related teaching, and can always find elegant arguments to rationalize what is actually inherent disinclination. As with most such statements, the cynicism reveals a grain of truth.

However, the green pastures have for some time become arid desert, and don't like other mortals have to seek more fertile oases. What government says the country needs (and it is right) is a major expansion of vocational

Keeping up with the new industrial revolution

John Horlock on the value of continuing education

based continuing education. So faculties which have kept at a distance from adult education are now discovering a life-giving draught, not only of finance but of stimulating new work, flowing from the springs of continuing education.

But continuing education is not without its problems. The spring water suddenly tastes bitter when it is learnt that the proposed courses must be known in advance to be saleable. Academic staff have to familiarize themselves with new collaborators, new course structures, new arrangements for distribution: challenges which will be stimulation to some, irritation to others. For vocationally-based continuing education courses the collaborators will naturally tend to come from industry and commerce.

Among others, Lord Flowers of Imperial College has noted the "interface problem" which exists between universities and industry, adding that mutual need may now be creating conditions to solve it. The lead of the Science and Engineering Research Council in contributing to change of attitudes, and creation of an innovative climate is notable. Among other schemes, they are financing a major postgraduate training programme at the OU in which our own staff, along with specialists from other universities and industry itself, are producing modular-based courses on manufacturing systems and on the industrial application of computers.

The new technologies are of course a catalyst for growth in the area of continuing education. On the new Engineering Council we are setting about the task of identifying potential new industries, and ways of revitalizing old industries. The pattern of this new technology will directly affect selection of the vocational courses required in continuing education. Technical advances will be frequent and over shorter and shorter timescales.

Two major groups likely to benefit from in-career training in modern industry have been identified by Sir Geoffrey Allen, formerly chairman of the Science and Engineering Research Council and now director of the research and engineering division at Unilever. In a paper to be given to the Thirteenth Commonwealth Universities Congress, he points out how rapidly technologists in industry are finding their original skills made obsolete (unless they happen to work in research and development). A different but equally vital need is teaching general managers in manufacturing industry about the technical base of their industry; decisions on finance, marketing and manufacture are becoming closely integrated.

I endorse Sir Geoffrey's analysis. In my own profession of engineering it has long been clear to me (and indeed to my fellow members of the Institution

committee) that we have lagged behind our competitors in the field of professional updating. Turn to the USA, Japan or West Germany, and you see a clear-cut and established recognition of the need by professionals to update, often through courses in industry itself. It is not only in our universities that the pressing needs for new training packages have been ignored — more importantly the blinkers have been on in UK industry itself. Let us hope now for a fruitful partnership between industry and the universities in the industrialized nations which will remedy the previous neglect by both sides.

Nonetheless in this brave new world there are attitudes beyond those of traditional attitudes on either side, not least those of finance. The British government believes the development of continuing education vocational mid-career courses must be self-financing. On the one hand industry feels it is already taxed towards the provision of technical education; on the other universities consider they must be free to offer some continuing education courses which they consider to be important — continuing education cannot be entirely "cheque-book led". The University Grants Committee is providing limited pump-priming grants to the conventional universities, but incredibly the major provider, the Open University, receives only loan financing for continuing education. (The initial cost of an OU course (for several thousand students) may involve a commitment of £250,000 to £500,000, the cost of preparing a course for a score of students at a conventional university may not be readily detectable within a block grant.) And of course there is also a financial problem for the students. Not all mature students will get their fees paid in full or will be able to afford to pay for themselves, and those unemployed or changing careers will need assistance.

But can universities provide for all the needs of industry? Here my own university has an undoubted advantage in its use of distance teaching methods. Because the OU brings the learning to the would-be learners in industry, companies have no need to find replacements to cover for engineers, scientists and managers absent on training courses. This replacement problem has long been recognized as a block to releasing people, and has played a considerable part in the SERC's decision to back the OU as the central body for its postgraduate updating scheme. Moreover, distance teaching allows the student to integrate his studies with his work; he remains on the job while he updates his skills — and from his point of view has no need to take his feet off the promotion ladder by absenting himself.

Another set of advantages coming from distance teaching is that the material is largely free-standing and comes packaged as a distinct whole, yet made up of related but large numbers of separate components. This allows integration for some of the components into company training plans as a kind of "spare part service". Further, the manager or group leader who purchases our material as a student may then pass it on to colleagues informally for individual or group use. We know that this happens and accept it. It achieves the objective of professional updating — even if it makes a bit of a nonsense of the Government's self-financing principle.

But there is no room for complacency. My colleague Professor John Meleky, now in charge of the SERC-funded manufacturing systems programme but formerly director of materials at Leyland, has pointed out that industry is impatient for results, while OU methods of course production are rather slow — it takes a year or two to produce a course. Nonetheless Meleky feels that the university has major strengths to deal with the manufacturing scene, not only in its capacity to cope with new technological challenges and by drawing on industrial case studies

but also in its systems approach and its appreciation of the human factor as a consideration in industrial systems.

The OU now has a direct dialogue with a large number of industrial organizations, establishing their needs and satisfying ourselves that these needs are met by the course material provided. We believe we have begun this dialogue effectively, as exemplified by the demand for our "long" courses in computer science, and our "short" self-study packs on microprocessors for generalist managers and engineers. More than 5,500 people have bought these microprocessor packs, and we believe, on survey evidence, that the total number of users may be four or five times that number. Our open business school will this year produce the first of our "awareness courses" for managers, making them aware of new developments and their impact, and thereby helping to serve one of the priority groups identified by Sir Geoffrey Allen. It is a reflection of growing demand, that when the OU started its continuing education programme in 1973 it was happy to number students in hundreds; now we have some 35,000 a year studying some 140 courses or five years.

Now polytechnics have been added to supplement Malaysia's sub-degree provision, an Islamic university has been approved and is at the planning stage, and another university is talked of for Kota Bharu, the Prime Minister's home state. Only a private Chinese university, backed by the wealthy business community which tends to send not privately-sponsored students abroad to study, has failed to get off the ground. The country is now beginning to normalize relations with the United Kingdom after reacting more strongly than any other to the imposition of "full-cost" fees for its students in Britain. Trade penalties and a ban on Government-sponsored students going to British institutions followed the 1980 fees rise, but last year's package of mitigating measures announced by Mr Francis Pym, as foreign secretary, have restored relations to some extent.

Regardless of this, Malaysia's higher education expansion is designed to reduce the need for students to go abroad. Undergraduate places are expected to rise above 10,000, which only the University of Malaysia approaches at present, and which would require a doubling in size for the universities of agriculture and technology. Only 1,392 postgraduate students were registered in Malaysia in 1980, but this, too, will rise under the expansion programme. The University of Malaysia, the most prestigious of the higher education institutions, has an institute of advanced studies, which already is being initiated by the other universities. With its strength in languages, the country's only Royal Professor in the vice chancellor Uthman Aziz and the largest student population both undergraduate and postgraduate, the university inevitably sets trends.

Soon, however, a radically different institution will be added to the system in the shape of an Islamic university being established with Saudi support and based at Fraser's Hill, near Kuala Lumpur.

Thereafter, however, I would expect there to be differences in emphasis between the universities of the industrialized nations and those of the developing countries — differences in the student groups and the subjects they are to be taught.

I also expect there will be differences in the way in which continuing education provision is structured. In the industrialized countries there will be increasing opportunities for new models of education, using multi-media teaching methods. In the developing countries I have no doubt that provision will be at a less sophisticated level, largely because the more limited technological base will constrain the full use of the new communications technology. Nevertheless, distance teaching universities have been and are being established in this Commonwealth and the development of educational provision will itself generate demand for technological development.

Both industrialized nations and developing countries are undergoing rapid and fundamental change. I believe it is now fully accepted that universities have a significant role to play in preparing for and fostering change through continuing education. The *Times* Higher Education Supplement is a weekly journal of the Commonwealth Universities Association.

Improving the home front

MALAYSIA

An ambitious programme of expansion for higher education in Malaysia has been mapped out for the next decade, despite some recent financial difficulties facing the country. With a polytechnic sector recently established, a sixth university on the way and a seventh under consideration, the flow of students abroad should be slowed as home facilities improve.

Until 1969, only the University of Malaya existed to provide education to degree level, let alone postgraduate courses. Then, in three years, the University of Science, the National University, the University of Agriculture and the University of Technology were all established, more than doubling the student population in five years.

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Young regimes left in charge

NEW GUINEA

A policy of taking over responsibility for higher education from Australia, which founded Papua New Guinea's two universities in 1963, has left young regimes on the two campuses.

Since independence in the middle of the last decade, Papua New Guinea has reduced its dependence on Australia, although it still receives financial support for the universities. The number of Australian staff, too, has declined, as salary ties have been cut.

The University of Papua New Guinea now offers a wide range of subjects, including medicine, on a 1,000-acre site near Port Moresby and has more than 1,500 students. The University of Technology, situated on the coast, concentrates on science and technology and has a marginally smaller student population.

The prospect for higher education in India is more of the same — and the same is a bewildering mélange of rapid and haphazard growth, low and still falling standards, increasing student unrest, more teacher militancy as the profession becomes unionized, and structures of university governance whose ineffectiveness, even irrelevance, seem daily to become more and more manifest.

The UGC estimated that there were nearly 1,500 "non-viable" colleges in the country at the end of the 1970s. At one time, new colleges were coming up at the rate of two a week; later, it noted with relief, the rate had dropped to two a month. Most of these had been set up to dispense political patronage, irrespective of need and demand.

To stem the proliferation of "non-viable" colleges, the UGC said that it would recognize and help to fund only those new ones set up in economically undeveloped areas where a need for a tertiary-level institution had been clearly identified. Despite this, in the 18 months that a particular ministry held office in Orissa state in eastern India, 64 private colleges set up shop. Today, some 200 private colleges have been recognized by the provincial government, while some await recognition. Yet, in the last ten years, no new government college has been started in Orissa.

Provincial governments bent on opening new colleges and universities are not deterred by the UGC's strictures or its withholding of recognition and even grants. In most cases, through political pressures exerted at the federal level (especially where the party in power in a state is the same one in office in New Delhi), the UGC can be persuaded to be more reasonable. In any case, the entrepreneurs setting up the new institutions have ways and means (capitation fees, "donations", tax-deductible loopholes) of keeping their heads well above water, even though the institutions may be "non-viable" in the UGC's calculations.

More rarely, a state government will dip into its own pocket to finance an institution it has set its heart on.

Student conflict at a haven for Bantu refugees

LESOTHO

By Carolyn Dempster
Calm pervades the campus of the National University of Lesotho, yet this small scenic university nestling at the foot of the Maluti mountains hides a bubbling student interior.

Described as the "most turbulent university in southern Africa" in 1981, NUL has in recent years witnessed inter-student conflict on a scale unequalled at any other southern African university. Yet on every occasion the university has managed to emerge relatively unscathed, growing apacely.

This year enrolment figures are expected to top 1,200, a far cry from 1945 when NUL (then Plus XII college — a Roman Catholic school for higher education), could boast of fewer than 10 students.

In 1964 the fledgling institution became the University of Basutoland, Bechuanaland and protectorate and Swaziland (BBS). After independence the name was changed to the University of Botswana, Lesotho and Swaziland, and in 1976 the trio split and NUL embarked on an ambitious expansion course.

There are currently five faculties: science, social sciences, humanities, education and law, with a faculty of

Growth and militance

INDIA

by A. S. Abraham

The new government in Andhra Pradesh state in south India, for example, headed by the film star-turned-politician, N. T. Rama Rao is going ahead with opening a women's university (the second in the country) despite UGC disapproval on the ground that modern education is not compatible with sexual segregation.

In the jungle of extravagant growth that higher education has become, it is a soul-destroying task trying to hack paths to academic excellence. The national failure rate at graduate level is estimated to be 50 per cent, and around 30 per cent at the postgraduate stage — a tremendous waste by any reckoning. And this despite easier examinations. To get over the examinations hurdle, they will go to any lengths. Copying and other unfair means are widely prevalent. So are corruption and intimidation. Student unions can demand — and get — "easy" papers and lenient marking, invigilators can be frightened into inactivity, examiners can be suborned into giving higher marks.

Bombay University, for the first time this year after a long gap, was able to hold its examinations and declare the results on time. But to be able to do so, it had to appoint a senior civil servant as a special executive authority, give him sweeping powers and gently ease out the vice-chancellor who was widely held responsible for the mess. The special officer was closely supported by the state governor in his capacity as chancellor of all the state's universities.

Reforms have been attempted and

Government's clean sweep

MAURITIUS

One of the first acts of the new government of Mauritius when it came to power last year was a clean sweep in the general election was to establish the National University of Mauritius, bringing together all the island's higher education in a single institution.

The Mauritius Institute of Education and the Mahatma Gandhi Institute were brought into the former University of Mauritius, which was established in 1965 but began developing fully in 1968. Other small institutes may be brought into the new university later.

The incoming government was well aware of the needs of higher education, numbering five professors or lecturers among its ministers, although political differences have since reduced the tally. And some action was needed since poor employment prospects for graduates had led the university to suspend its undergraduate intake for two years before the election.

Dr J. Manrakhan, vice-chancellor of the University of Mauritius, will head the new institution, although other appointments are still to be confirmed. Dr Manrakhan has published a series of articles outlining his plans for a university truly relevant to the needs of a developing community.

front, which supports the ruling Basotho National Party, is in control of the student representative council.

Economic crisis halts planned expansion

TANZANIA

Hopes of a substantial expansion of higher education in Tanzania have had to be tempered by the country's financial crisis. Plans for a number of new universities to supplement provision at the University of Dar es Salaam are unlikely to come to fruition in the foreseeable future.

A presidential inquiry into the university has not been released, but it is expected to result in the separation of one of the three campuses to form an autonomous institution. The new university would be based in Morogoro,

some 100 miles from Dar es Salaam, where courses in agriculture and forestry are run.

The remaining two campuses in the capital itself, one of which houses the medical school, would continue on the basis established in 1970, when the university grew out of the former University of East Asia. Since then, it has expanded to about 3,000 students but cannot hope to keep pace with the dramatic increase in qualified candidates which has resulted from Tanzania's concentration on secondary and adult education.

Candidates for university places normally are not considered on leaving

political purposes ever since the start of the independence movement.

Student politics is one of the main sources of violence on the campus and will long remain so. In May this year, the dean of student welfare at Punjab Agricultural University in Ludhiana, Prithpal Singh, was killed as a result of student feuding that had already caused a student's death a month earlier. The dean's murder was nationally mourned because he was an ex-Olympic hockey star.

But the provincial government has yet to act. What it did do, in April 1980, was to appoint a University Inquiry Commission which has now recommended a number of radical structural reforms to streamline the state's universities. These include banning all strikes as well as university elections, making all appointments, from vice chancellors downwards, strictly on merit and with no regard to caste, and debarring teachers from contesting parliamentary, provincial or civic elections, or otherwise taking part in politics, on or off the campus.

As inflation over the years has deeply eroded the real value of teachers' incomes, they have had to fight a continuous and, on the whole, losing battle for pay rises. Only recently, Delhi University teachers went on a protracted strike to end the stagnation for scores of them that occurs when promotions are blocked and few fresh senior posts are created.

The restructuring of formal education, with two intermediate years of junior college prior to a three-year (previously in many places a four-year) degree course, has meant effective demonstrations for large numbers of teachers, the alternative to which is retrenchment (there has been some of that in any case). As economic and working conditions worsen, teacher militancy (with students mobilized in the cause) can only grow, even as the authorities try to clamp the lid down. Plenty of trouble clearly lies ahead.

One controversial reform that has not yet been tried out in more than a handful of areas is the designating of selected affiliated colleges as autonomous institutions. Tamil Nadu state in south India had ten colleges given autonomous status in 1978/79 for a five-year period.

Inevitably, the idea has been furiously attacked as elitist, with the critics charging that the university authorities throughout the country, having tired of trying to improve higher education across the board, want to mollify a small minority of well-run colleges at the expense of the majority.

The pressure of increasing numbers on colleges and universities has led to two important developments: firstly, student unrest and campus violence and, secondly, teacher militancy. The first has been fostered to a great extent by political parties — not surprisingly, since students have been mobilized for

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COMMONWEALTH UNIVERSITIES TODAY

University reopening demand

Public pressure is building up in Kenya for the reopening of the University of Nairobi, with two cohorts of school-leavers now waiting to embark on degree courses.

The university and its associated teacher training institution, Kenyatta College, have been closed since students were accused of taking a leading part in an unsuccessful coup attempt last year. Only the polytechnics and the American-owned International University, in Nairobi, have been open since.

Students were allowed back to sit examinations early this year but the campus was shut again immediately afterwards. A number of students and academics remain in prison, some on lengthy sentences for sedition, although the majority of students detained were released last year.

President Daniel Arap Moi has re-

KENYA

ceived the 400-page report of an inquiry into the university, but this has not been published and no date has been given for a reopening. It is understood that the Government is considering moving some of the departments thought to have been most closely involved in the attempted coup away from Nairobi, but the university is unlikely to reopen before this autumn's elections.

Ironically, President Moi was already intending to expand higher education provision, which nowhere near meets the demand for places, before the troubles. A commission of academics was asked to consider where and how a second university should be established and their report, too, is awaiting action.

Proposals for an open university, supported by academics from the British equivalent several years ago but shelved at the time, were also resurrected by President Moi. But no firm commitment has been made to its establishment.

Not surprisingly, the International University, whose parent institution is in San Diego, California, has struggled to keep pace with substantially increased demand for places since the closure of the University of Nairobi. It has now moved into larger premises. Although the polytechnics at Nairobi and Mombasa have remained open, both are sub-degree institutions.

The effects of the closure are also being felt in other third world countries, since the well-respected university in a hitherto politically stable country attracted foreign students as well as Kenyans.

Demand outstrips supply in Crown Colony

HONGKONG

Strenuous efforts have been made in recent years to keep up with the near-impossible task of satisfying the demand for higher education in Hong Kong. A new polytechnic and a private university at Macau have joined the three existing institutions serving the territory.

With fewer than 10,000 places available in Hong Kong itself for almost six million people, the pressure on places remains intense and there is relief that special arrangements have been made with the United Kingdom to enable more postgraduates to study at British universities and polytechnics. A scheme proposed by the Hong Kong government will split the cost of overseas student fees with Britain and restore the traditional flow of students to British institutions.

The latest institution to be set up is a second polytechnic which, like the first, has taken its director from Britain and has opted to go under the umbrella of the Council for National Academic Awards. It is designed to be complementary to the existing polytechnic,

although there will be some overlap in courses.

Hong Kong's first polytechnic, under the directorship of Dr Keith Legge, is larger than either of the island's universities with a student population of about 20,000. It concentrates on technological subjects and was the subject of a recent CNA A visitation.

The long-established University of Hong Kong has pursued a policy of recruiting staff from the colony where before a high proportion of expatriate Britons were employed. It has a high international standing and extreme pressure on places.

Since 1963 it has been accompanied by the Chinese University of Hong Kong, which now has more than 5,000 students on its campus in the New Territories. Unlike the University of Hong Kong, it operates on an entry system similar to the Scottish equivalent, running four-year courses.

The third university, known as the University of South-East Asia, is not associated with the Hong Kong government and is based on the mainland. As a private institution, its higher fees have hindered its speedy development, although it has also now spawned an Open College.

New vice chancellor for islands

SOUTH PACIFIC

The second vice chancellor of the University of the South Pacific takes office in October, when Dr C. C. Aikman, who has headed the institution since its establishment in 1968, retires. His successor is to be Mr Geoffrey Caston, secretary general of the British Commonwealth of Vice Chancellors and Principals.

Centred on Fiji and with a second campus in Western Samoa, the university serves the network of islands

in the South Pacific with financial aid from Australia and New Zealand. The second campus, which was added in 1977, houses the school of agriculture, while the schools of education, natural resources, and social and economic development are situated near Suva.

A development plan for the university has been under way since 1978, replacing buildings inherited from the Royal New Zealand Air Force, which previously used the main campus as a flying boat base. Extension centre buildings are also planned for the Gilbert Islands and the Cook Islands.

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Autonomy may mean break-up

WEST INDIES

The coming year will be a momentous one for the University of the West Indies (UWI), as preparations start for a major restructuring scheme due to come into effect in October 1984. The plan, which was approved early in July at a meeting of heads of government of the Caribbean community (Caricom), will give greater autonomy to the university's three campuses in Barbados, Jamaica and Trinidad. Some critics, however, fear that the move could lead to the break-up of the university and to the establishment of separate national universities.

The university began life in 1948 as the University College of the West Indies, an affiliate of the University of London; it became a university in its own right in 1962. The original college, at Mona, Jamaica; the Imperial College of Tropical Agriculture at St Augustine, Trinidad; was incorporated in 1960, and the Cave Hill, Barbados, campus was established in 1963.

The university is now a regional institution supported by and serving the three above-named countries, plus Anguilla, Antigua, Bahamas, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Montserrat, St Kitts-Nevis, St Lucia and St Vincent. It is governed by a council representing contributing governments, academic staff and students.

Finance is mainly provided by the governments of Trinidad and Tobago (48 per cent), Jamaica (36) and Barbados (12); the remaining 4 per cent is shared by the other 12 territories. The restructuring plan will give each campus a separate grants committee, while maintaining the central university council and grants committee.

Uneasiness about the changes has been expressed mainly by the smaller islands, which have sought arrangements to ensure that their interests are not overlooked as the three campuses take on a more national character.

The most explicit criticism has come from the government of Grenada, which has argued that teaching standards will suffer if the three campuses start to compete for staff by offering pay differentials. Pay scales at Mona are already below the other two campuses, and it is feared that increased autonomy will worsen the differential.

At the beginning of the 1981/82 academic year, UWI had 9,484 students (4,807 men; 4,677 women). The biggest campus was Mona (4,736), followed by St Augustine (3,142) and Cave Hill (3,006). Social sciences was the biggest faculty (2,409), followed by arts and general studies (2,247), natural sciences (1,900), engineering (736), medicine (337), education (555), agriculture (432) and law (428). The figures include 1,204 postgraduate students. Affiliated institutions include the Caribbean Agricultural Research and Development Institute, Barbados, and the Caribbean Veterinary Research and Development Institute, Jamaica.

Twenty years of improving

NEW ZEALAND

Twenty-five years ago a review of the prospects facing New Zealand universities started with a picture of a university system in crisis. The Hughes Parry report of 1959 made it clear that the universities of the time were understaffed, poorly housed and inadequately financed, and that too high a proportion of the students were part-timers.

In 1958, in a country of 2.4 million people, there were 13,335 university students of whom 46 per cent were enrolled for part-time study. A total of 1,166 degrees were conferred that year.

Over the succeeding 25 years the universities mushroomed. They became autonomous institutions in 1962 with the dissolution of the University of New Zealand; their staffing improved; massive building programmes transformed the campuses.

In 1982 only 29 per cent of the 45,311 internal students were part-timers and graduate numbers reached 8,977. A further 8,838 students were enrolled externally by Massey University.

The 1960s were a period of growth and excitement in New Zealand as elsewhere. Growth slowed in the 1970s but student numbers are still rising by about 1,000 a year. More importantly, however, the heady atmosphere of the 1960s gave way in the mid-1970s to a period of retrenchment as New Zealand's economic growth dropped and the universities faced their share of an increasing austerity.

Preoccupations with society gave way to the needs for career preparation as students moved in ever increasing proportions into studies in commerce and the applied sciences.

In 1958 there was no doubt that major changes were needed and there was the will on the part of the government and its successors, the university council, and the University Grants Committee to achieve the necessary transformations.

It would certainly be difficult to conceive of changes as dramatic as those that have occurred, and it may equally be true that the scale of past changes was only dimly envisaged by even the most imaginative forecasters.

Auckland University which boasted a library collection of 127,000 volumes in 1958 added its millionth title this year with, as much by planning as coincidence, the ceremonial acquisition of Professor Keith Sinclair's centennial study, *History of the University of Auckland*.

The library readership has changed markedly. Twenty years ago only one student in four was a woman. Today 44 per cent of the students are women. And the women have moved in ever increasing number into disciplines which were traditionally and overwhelmingly male dominated, in a trend which should continue for some time.

Unemployment has become a more serious affair. With unemployment in the country at an all-time high of about 5 per cent, career prospects assume greater importance. Within the universities the move towards increased term assessment, with the associated increased importance of assignments, has reduced the frivolity of the first two years of the academic year.

Academic staff can now move into their posts more easily. A decade ago the quiet for each advertised post was enormous. It is not uncommon to find more than 80 applicants for a single post.

Meantime the universities will need to be on their guard to ensure that, in the face of vocationalism, and temptations to engage in more "relevant" research, they do not lose sight of their basic purpose.

For the longer term, prospects for universities in New Zealand are less easy to capture. Nostalgia still remains for the more lively days of growth in the 1960s, but the universities are slowly adapting to the diminished expectations of the wider community. The universities will need to be on their guard to ensure that, in the face of vocationalism, and temptations to engage in more "relevant" research, they do not lose sight of their basic purpose.

Sixteen per cent of the staff were under 30 in 1969; today only 4 per cent are in that age group.

Without doubt the quality of teaching and research has improved significantly over the past 20 years. Today's universities are much better equipped; provisions have been made by the universities to provide support and training for the teaching function; funds for research, though never sufficient to meet the demand, are more readily available; doctoral students were rare in the 1950s and now 140 or so a year complete their degrees.

Postgraduate diplomas have proliferated with some 75 separate diplomas available in 1982 to provide graduates with the chance to add a career-orientated element to general degrees.

The growth and growing complexity of the universities has had its administrative consequences. A vice chancellor today is more likely to be a scientist, engineer or economist by training than a classicist, historian or even lawyer.

Collectively their preoccupations have changed. The 1969 Conference of New Zealand Universities was, in effect, a celebration of autonomy and a studied defence of the right of each university to determine its own destiny within the finances provided.

The key subject at the second (and, so far, last) Conference of Universities in 1974 was the possibility of improving cooperation among the universities in academic planning, advanced studies, research, staff training and the dissemination of information.

Coping with retrenchment might be the key topic in 1983. The climate is, indeed, less congenial. The universities have had to face the 3 per cent cuts in income imposed on all areas of government spending and the immediate prospect are for a period of considerable constraint.

Under these circumstances the universities, not unnaturally, are giving a higher profile to research activities which bear more obviously on immediate and publicly appreciable topics.

Some of that immediacy comes from a small but steady increase in external funding of research as the universities and individual academics seek to tap a wider range of funding sources.

Part of the changing profile, however, comes from a heightened wish to be seen to be relevant and the associated tendency to publicize their work more vigorously. While contract research is still a minority occupation it is likely to grow more rapidly over the next few years, and in ways which should benefit both the university and the community.

At a national level the universities have been well served by the University Grants Committee under its chairman Dr Alan Johns. The UGC, an independent statutory body, has carefully responded to growing political pressures on the universities.

Quinquennial funding has survived to date, with income augmentations to the universities to compensate for the effects of inflation.

The UGC has had the difficult task of attempting, under close government scrutiny, to persuade the universities to reduce their levels of expenditure on student welfare services, of asking of universities to reduce the number of staff it has professorial level, and of easing in common conditions of employment for non-academic staff.

In areas like these the UGC has had to encroach on traditional areas of university autonomy, and this tendency seems likely to grow.

Behind the UGC's persuasion has been the threat of more direct government intervention if the universities fail to respond and the universities have had to accept the sometimes unpalatable notion that the preservation of some degree of autonomy may require compliance with government-initiated UGC directions.

That Dr Johns and his committee continue to be held in high regard by the universities is a reflection of the strength of the UGC.

For the longer term, prospects for universities in New Zealand are less easy to capture. Nostalgia still remains for the more lively days of growth in the 1960s, but the universities are slowly adapting to the diminished expectations of the wider community. The universities will need to be on their guard to ensure that, in the face of vocationalism, and temptations to engage in more "relevant" research, they do not lose sight of their basic purpose.

Hawke government pays for expansion

AUSTRALIA

by Geoff Maslen

The Australian government will provide an extra A\$10m to universities and colleges next year to allow them to enrol an additional 3000 students and employ more staff. The money will be part of an overall A\$31m increase in grants to post-secondary institutions, including tertiary and further education colleges, and will bring the total allocation to tertiary education by the Commonwealth to A\$2100m. The boost in funds is certain to heighten morale within the Australian academic community.

For the first time in more than five years, there is a detectable air of optimism. The view of many academics that the institutions to which they belonged were facing death by a thousand cuts disappeared with the fall of the Fraser government in March.

In place of the gloom there has come a sense of hope, inspired by promises made before the election by the new prime minister, Mr Bob Hawke, and assurances since then by the minister for education and youth affairs, Senator Susan Ryan, that - among other things - Labour will:

- commit more money to higher education;
- provide an extra 25,000 student places in universities and colleges of advanced education over the next three years.

- allocate extra finance to selected institutions to increase enrolments in approved areas, with special emphasis given to disadvantaged groups and to off-campus students.

- increase the tertiary education allowance for eligible students so that the maximum grant will equal the single adult unemployment benefit.
- increase the number of academic staff. Although the government had promised to award 300 research fellowships, this has not yet come through. Instead, universities will be able to employ young scholars by using some of the A\$10m allocated to increase the number of student places.

According to Senator Ryan: "Our first task is to restore the credibility of higher education with the general public. There has been a systematic talking down of higher education by the former government which reflected its ideology and was manifested in such things as the creation of centres of excellence which seemed to indicate that the government was only interested in certain types of higher education. We, on the other hand, have a much more general commitment to this area."

Senator Ryan says the government is conscious of the attrition which has affected tertiary education over the past five years and accepts that unless Australia encourages people to go into higher education, the prospects for long-term economic recovery are poor. The anticipation generated in academic circles by these pronouncements is none the less tempered with caution, for the task facing the Hawke government in rejuvenating higher education - and restoring confidence in it - is enormous. The general decline that occurred between 1975 and 1982 affected almost every aspect of university and college life and, with the government facing massive budget deficits over the next three years, it may take more than one term in office to reverse.

Building programmes alone pose considerable problems. Estimates by the Universities' Council, for instance, claim that 12 per cent of university buildings need major renovation and another one in 20 would be better demolished.

In staffing, too, there are many areas of serious concern. After an explosive growth in the 1960s and early 1970s, universities entered a steady state situation which, together with the later decline, is leading to a hardening of the academic arteries and eventually, a greying of academics.

The rapid expansion in recruitment of young graduates to tenured positions in universities and colleges in the past, has now led to a serious imbalance in the age structure of academic staff.

In a background paper, prepared for the Conference of Executive Heads which will precede the Universities Congress, the Australian Vice Chancellors' committee says this imbalance has severe repercussions for staff turnover, flexibility and morale - repercussions which are likely to be felt for the next 10 to 15 years.

And if the problems are not redressed in this period, a subsequent cycle of problems will arise in the first decade of the next century and perpetuate the imbalance for future generations. Current age profiles of full-time teaching and research staff in Australian universities and colleges of advanced education reveal a peak concentration in the 35 to 44 age bracket, with three out of four academics under 45 years of age, and the number aged 55 and over relatively small.

According to the vice chancellors' committee, with only one in ten academics due to retire within the next decade, staff turnover throughout the 1980s and until the mid-1990s is expected to be only a third to a half of the ideal turnover rate.

Financial stringency has also resulted in universities employing increasing numbers of young academics on short-term contracts. Indeed the proportion of university staff on fixed term or non-renewable contracts has doubled since 1973, and although tutors and senior tutors have, for the most part, always held untenured posts, increasing numbers of academics at the lecturer level are also being employed for limited periods.

On average, more than 20 per cent of lecturers now hold non-tenured positions, compared with just 12 per cent 10 years ago. Altogether, about one in four of Australia's 11,000 university academics lack the security of employment that the majority of Australians take for granted.

Both the Australian Vice Chancellors' Committee and the Federation of Australian University Staff Associations have called for the introduction of an early retirement scheme as part of a series of proposals intended to create greater flexibility in university staffing. The vice chancellors have recommended a grants scheme to encourage academics aged 55 and over to retire that would cost A\$12m a year over the next three years.

The federation says such a scheme needs to be coupled with the introduction of part-time permanent appointments, shared appointments and more exchanges programmes with industry. But, the federation claims, universities remain hopelessly inflexible when these sorts of suggestions are put to them.

The vice chancellors' in their background paper, point to a further problem affecting staff vitality and morale: the difficulty faced by Australian graduates in obtaining overseas appointments, even for the short term. Australian universities aim to recruit academic staff of the highest possible calibre as judged by international standards, the vice chancellors say. Positions are therefore normally advertised overseas as well as in Australia.

"It is generally believed that to restrict academic appointments to Australian citizens would be detrimental to the free flow of knowledge and the maintenance of the highest standards of scholarship and research," say the vice chancellors. But they find it disturbing that Australian academics then face restrictions in obtaining reciprocal access to positions in overseas countries, particularly Britain, America and Canada.

They suggest the establishment of an "Office of Academic Exchanges" to facilitate the reciprocal movement of academics between Australia and overseas countries.

The cutbacks in capital, equipment and recurrent funding during the years of the Fraser government have also profoundly affected higher education's research capabilities.

"The intellectual quality of the nation has been allowed to run down," says the chairman of the Australian Research Grants Committee, Professor Peter Sheehan. "Research workers in Australian universities are facing a cash crisis."

Professor Sheehan says his committee has received applications from university researchers for more than A\$50m in subsidies for 1984 projects - but the total budget available to the committee in 1983 was less than A\$20m. Professor Sheehan says that in 1982 the committee had to reject more than 500 applications for grants, although a number of the projects warranted funding. Five years ago, all worthwhile applications received grants.

"Money from the research grants

scheme now accounts for only 13 per cent of the total expenditure by universities on research, compared with 23 per cent in 1966 when the scheme was started," Professor Sheehan says. He says the increased allocations to the arts and the increase in the number of postdoctoral awards, recently announced by Senator Ryan, will go part of the way to solving the problems of university research, although it would take many years to make up for what had been lost in the 1970s.

For many students in higher education, the last five years have also been grim. Between 1975 and 1982, for instance, the average student grant was cut by 14 per cent and, overall, student allowances are now worth little more than half the amount required to live on the poverty line. This has been certainly part of the cause of the drift from higher education by young people - a drift that until 1983 saw the proportion of school-leavers going on to further study in universities and colleges fall by 18 per cent.

According to Professor Max Charlesworth, a professor of philosophy at Deakin University, universities have done precious little in the way of confronting their society or playing the part of social physicians. They have been, Charlesworth says, barely concerned with giving Australian society what it wants. They have never seen themselves as the intellectual ombudsmen of their society, nor have people outside the institutions looked to them to act as social consciences or Socratic critics.

Senator Ryan says universities could do much to improve their image as employers. Their treatment of junior staff has often been poor and their record in relation to the employment of women (who make up about 17 per cent of the academic community) and of minority groups, has also been far from exemplary.

She says that while some progress has been made towards industrial democracy in universities, it is not what one would expect from a community of scholars. Students, generally, are excluded from any voice in management or influence in the direction of their learning, she says.

Only about 15 per cent of school students go on to universities. But what of the other 85 per cent? There is little evidence to show that universities exert their influence with any sense of responsibility to them. Indeed, there is a marked gap between the control of the syllabus and teaching methods by universities and their contribution to the construction of courses for schools and school systems, she says.

Senator Ryan has made it clear that the government wants to increase the participation of women, migrants, the disadvantaged and aborigines in higher education.

She is also firmly asserted that universities will be supported in moving into fields the government believes will bring the best returns in social and economic terms.

Money from the research grants

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Violence began on campus

SRI LANKA

Universities in Sri Lanka have been unable to avoid the disturbances which have brought the island on to the front pages of newspapers all over the world this summer.

Indeed, incidents between students in May and June proved forerunners to the more serious violence which has taken place elsewhere since. Tamil undergraduates fled the halls of residence at the University of Peradeniya following an attack by Sinhalese students angry at the defacing of English and Sinhalese notices. Some were attacked and their rooms ransacked in the incidents.

Another incident at the University of Colombo also led to Tamil students leaving a hostel. President J. R. Jayewardene, who takes personal responsibility for higher education, was kept informed of developments, which included the appointment of a committee of inquiry.

He has since removed all vice chancellors and principals of university colleges and reappointed them with stronger powers in an attempt to maintain discipline. They were given the powers previously vested in university councils after further disturbances at Peradeniya.

The succession of incidents, which followed earlier violence between students and local residents at the University of Sir Jayawardhanapura leading to the temporary closure of the university and the replacement of the vice chancellor, have diminished an otherwise successful period of expansion. The annual intake of full-time students at the seven conventional universities rose from 3,500 to 5,500 between 1976 and last year, while the Open University founded in 1980, is expecting 18,000 students by the end of this year.

By 1989, the Open University is planned to have 35,000 students taking its largely sub-degree courses. A £14m expansion programme was announced earlier this year. Full-time enrolments have risen sharply since the decision to create autonomous universities from the six campuses of the University of Sri Lanka, created in 1972. The reversion to separate institutions, in 1978, was accompanied by the establishment of the Ruhuna University College and later followed by the creation of the University College of Batticaloa.

With pressure on places remaining heavy despite the expansion, controversy has centred on the selection system, which tries to ensure an even geographical spread through the adoption of quotas. The inevitable result is the recruitment of some students less well qualified than others who happen to live in an area which is over-subscribed.

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TWENTIETH-CENTURY FRENCH LITERATURE

1920-1970

by GERMAINE BRÉE

In her survey of French literature from 1920-1970, Germaine Brée demonstrates that to understand the literature of that period we must consider it in its social and historical context. After an overview of the historical, political and social climate in post-World War I France, Brée examines the literary life. She focuses on the intellectual currents that affected literature - those in painting, cinema, popular culture, linguistics, psychoanalysis, and philosophy - and ends with the development of the novel, poetry, and theatre. Brée anchors her analysis on eight authors whose work she feels is emblematic of the time: Cocteau, Breton, Malraux, Céline, de Beauvoir, Camus, Cioran, and Simon. *Twentieth-Century French Literature* includes a Dictionary of Authors that provides bibliographic as well as biographical information, and a revised bibliography. Translated by Louise Guiney. 390 pages, August 1983, £20.00.

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COMMONWEALTH UNIVERSITIES TODAY

Social pressure to be a success

by Mary Price

The National University of Singapore was established in 1980 following the merger of the University of Singapore and Nanyang University and since then has been undergoing an expansion programme which will take its undergraduate enrolment from 9,000 students in 1980 to 4,500 students in 1985.

With this increase in student numbers, the NUS is actively recruiting academic staff both from other countries in Asia and from the West, particularly from the USA, Australia and the UK in order to achieve an overall staff-student ratio of 1:10. In May 1983 there were just over 1,000 academic staff, 49 per cent of whom were expatriates.

As in much of Asia, educational qualifications are much sought after in Singapore and there is considerable social pressure on individuals to achieve the highest possible qualifications with the highest possible grades. In addition to that pressure, which is traditional among the Chinese who form 77 per cent of the population of 2.4 million, the government policy of turning Singapore into the high technology resource centre of South East Asia by the end of this decade has caused a move away from labour intensive industries towards a highly computerized, technical industrial base. This is seen as essential in a small island republic which has no natural resources but which because of its location and deepwater harbour is the second busiest port in the world.

These factors, as well as other local developments such as the growth in the number of high rise buildings and the construction of a mass rapid transit system (underground railway), have added computing science and most branches of engineering to the traditionally high status and highly remunerated professions of medicine and law.

Consequently at secondary school level the past few years have seen an increasingly strong trend towards high status jobs. Indeed the trend has become so marked that the government now awards scholarships to encourage students with high O level scores in science to take arts A levels simply to ensure that some of the brightest students look for careers in the arts, social sciences and management.

The trend continues at university level although the most popular course is still medicine and the real prospect of all the students with the highest A level scores being concentrated in that one faculty has led to a quota system being employed whereby a proportion of applicants with maximum scores (ie four grade As at A level) are allocated to other faculties while a number of students with lower scores will get into medicine. The annual effect within the university may be to spread talent across disciplines, the effect outside, judging by letters to newspapers, is ill-feeling and disappointment.

Issues such as the medicine quota are very sensitive in Singapore where the university is obliged to follow manpower projections laid down by the government, projections which may vary considerably from year to year and which are not published. The NUS may not be controlled as directly by government as universities in some other Asian countries are but the link is more direct than for British or American universities and the NUS is very conscious of its role as the only university in a country which could until recently claim to be "developing".

Meeting a particular need

ZIMBABWE

Since independence, large amounts of aid, mostly from Britain, have been put into developing a university which will serve the particular manpower needs of Zimbabwe.

After a transitional period under an expatriate vice chancellor, the university is now in the charge of Dr W. J. Kamba. Opened in 1957 as the University of Rhodesia and Nyasaland, its subsequent Royal Charter was re-

tailed unaltered as the basic constitutional instrument of the University of Zimbabwe, which was formed in 1980.

Like all institutions in Zimbabwe, the university has gone through a period of "Africanization" but many white staff remain, including the vice-chancellor, Professor G. Bond.

Student numbers are expected to expand considerably from the 1980 figures of little more than 2,000, while the Institute of Adult Education copes with increasing demand for off-campus programmes.

Faculty of the former University of Malta. The remaining faculties were formed the Old University.

But in 1980, Dom Mintoff initiated a further reorganization, bringing the two institutions into one and attracting much criticism in the process. A number of Maltese academics were dismissed.

Preference for admission to courses, which are all undergraduate, is given to "worker-students".

THE TIMES SUPPLEMENTS REPRINT SERVICE

Robbins to Leverhulme

The Leverhulme programme of study into the future of higher education was organised by the Society for Research into Higher Education with a grant from the Leverhulme Trust and further grants were made by the Gulbenkian Foundation and the Department of Education and Science. The programme consisted of eight seminars the first in April 1981 and the last in September 1982.

An edited four-page version of the final report is now available in reprint form (first published in The Times Higher Education Supplement on 27th May, 1983) price 25p. Inquiries should be addressed to Frances Goddard, The Times Supplements, Priority House, St John's Lane, London EC1M 4BX. Cheques/postal orders should be made payable to Times Newspapers Limited (no cash please).

SINGAPORE

Part of the role of a university closely linked to government plans and requirements for trained personnel can be clearly identified in the development of the Nanyang Technological Institute, which is scheduled to become a Technological University by 1985. In developing various professions and institutions to meet the needs of Singapore, systems in other countries are examined and sometimes adopted for local conditions.

So what is seen as a western problem of producing graduate engineers with good theoretical backgrounds but with insufficient practical experience has led to the creation of the NTI and a Singaporean solution. Engineering students are admitted to the university where they study for one year; at the end of that year, those with the best grades and who are regarded as having research potential remain at the NUS. The rest go on to the NTI where they are given a practice-oriented training. Whether this will produce the desired pool of graduates able to relate theory to practice and vice versa remains to be seen.

Another problem facing the NUS is research. Funds are limited and by western standards very low compared with the university's budget as a whole. It is intended that eventually 5 per cent of the university's budget will be spent on research but no fixed date has been given for that aim.

There is also a debate on the optimum balance between pure and applied research, certainly at present priority is given to applied research as being of "relevance to Singapore" but the NUS is aware that if it wishes to be recognized internationally as a research as well as a teaching university, it must in the long-term make more allowance for research as a whole and for "pure" research in particular.

University expansion

BANGLADESH

A new Islamic University and four university colleges are to be added to the higher education system in Bangladesh under the country's second five-year plan.

They are intended to join the three universities based in the capital of Dhaka and three others, at Mymensingh, Chittagong and Rajshahi. The Islamic University will be located in Khulna, the southern zone which is the only one without a university at present, while the university colleges are based on existing government colleges.

Other colleges remain affiliated to the various universities, with attendant controversy over the standard of facilities available for degree work. A number have folded under financial pressure as the cost of higher education increased beyond the means of a sufficient body of students.

The total number of students within the universities themselves had passed 30,000 by the beginning of the decade, the two largest being the University of Dhaka (12,000) and Rajshahi (8,000). The many colleges swelled the numbers so much that Dhaka alone registered almost 68,000 and the total far exceeded 100,000.

One of the last expatriate vice chancellors in Africa, Dr David Kimble, presides over an institution which is more diverse than almost any in the continent. It comprises four constituent colleges which incorporate all levels of further and higher education: The technological skills of the polytechnic, for example, have been

put to practical use by the university itself, with students helping to equip laboratories and build study accommodation for an engineering degree. The integration of disciplines and levels of study was a primary objective in setting up the university in 1964.

Fewer than 5,000 students attend the four campuses, which are spread around the country. The university's headquarters are at Chancellor College, in the liberal arts are based; the polytechnic, which offers business studies as well as science and technology, is in the new capital of Blantyre; Bunda College of Agriculture, which offers degree- and diploma courses, is at Lilongwe; while the newest addition is the Kamuzu College of Nursing, also at Lilongwe.

World Bank carries out survey

MALAWI

The University of Malawi has remained remarkably free from political constraints despite worries on the part of the government that its costs were becoming too high to bear. A survey being carried out by the World Bank partly to assess the need for outside aid.

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MALAWI

Unbeatable record of a university per state

NIGERIA

No country in the Commonwealth has matched the pace of expansion in higher education set by Nigeria in recent years. Three waves of development, begun in the 1960s have raised the number of universities from one at the start of that decade to 26 now.

Pursuing a policy of providing a university for each state, the government has supported the establishment of 20 federal universities, while there are a further six state institutions. Although the expansion was undertaken before declining oil revenues began to undermine Nigeria's economic position, the many new institutions have continued to establish themselves.

There is even a likelihood of demands for more universities if the number of states is increased in line with proposals now under discussion, which would see the total rise from 19 to 45. No further expansion of higher education institutions is planned at present, but a more modest increase in the number of states would be bound to renew pressure for a rethink.

The federal universities are divided into 13 broadly-based institutions and seven technological universities which

Revamped institution grows on three sites

ZAMBIA

The University of Zambia is now into the fourth year of a new phase of development, set under way by an Act of Parliament in 1979.

The Act laid down plans for a single university run on three campuses, one of which was operational at the time. A second, at Kitwe, serving the copper belt, had opened a year earlier at a temporary location. The third was to be at Solwezi, in the north-west of the country.

Headquarters for the revamped institution - and the largest campus - remains just outside the capital of Lusaka, where there are plans for extensions to the medical school to incorporate dentistry and pharmacy and to the agricultural, engineering

and mining schools. It is also intended to provide a school of veterinary medicine.

The university was set up in 1964 on the recommendation of a group chaired by the late Sir John Lockwood. Under the vice chancellor, Dr J. M. Mwanza, student numbers have expanded to around 4,000, most of whom are on the Ridgeway campus at Lusaka.

As well as housing a number of research institutes, including the Institute for African Studies, a rural development studies bureau and an institute of human relations, the university also includes a centre for continuing education. This uses radio and television as well as lectures and correspondence courses to bring education to the public, and a network of resident tutors organize seminars and workshops in the main provincial centres.

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MALAWI

formed the last wave of development and some of which are not fully operational yet. Two have not begun teaching while a third only accepted its first students in February.

All the technological universities were designated since 1980, hard on the heels of the six general institutions founded in the mid-1970s, at Bayero, Calabar, Ilorin, Jos, Maiduguri and Port Harcourt. State universities, too, have continued to appear but are excluded from the national network which is publicized abroad.

Ibadan, which was the first Nigerian institution with university status (in a special relationship with the University of London), is still regarded as the leading university, although the new establishments have proved a drain on senior staff. It now has some 8,000 full-time students - fewer than the universities of Lagos and Ife and of comparable size to the University of Nigeria, which is also based in the capital.

Many of the newer institutions have student numbers targets which seem unrealistically high in the light of the most recent projections of demand. Insufficient numbers of school leavers have qualifications for the science and technology courses to which the government gives highest priority.

Revamped institution grows on three sites

ZAMBIA

The University of Zambia is now into the fourth year of a new phase of development, set under way by an Act of Parliament in 1979.

The Act laid down plans for a single university run on three campuses, one of which was operational at the time. A second, at Kitwe, serving the copper belt, had opened a year earlier at a temporary location. The third was to be at Solwezi, in the north-west of the country.

Headquarters for the revamped institution - and the largest campus - remains just outside the capital of Lusaka, where there are plans for extensions to the medical school to incorporate dentistry and pharmacy and to the agricultural, engineering

and mining schools. It is also intended to provide a school of veterinary medicine.

The university was set up in 1964 on the recommendation of a group chaired by the late Sir John Lockwood. Under the vice chancellor, Dr J. M. Mwanza, student numbers have expanded to around 4,000, most of whom are on the Ridgeway campus at Lusaka.

As well as housing a number of research institutes, including the Institute for African Studies, a rural development studies bureau and an institute of human relations, the university also includes a centre for continuing education. This uses radio and television as well as lectures and correspondence courses to bring education to the public, and a network of resident tutors organize seminars and workshops in the main provincial centres.

World Bank carries out survey

MALAWI

The University of Malawi has remained remarkably free from political constraints despite worries on the part of the government that its costs were becoming too high to bear. A survey being carried out by the World Bank partly to assess the need for outside aid.

One of the last expatriate vice chancellors in Africa, Dr David Kimble, presides over an institution which is more diverse than almost any in the continent. It comprises four constituent colleges which incorporate all levels of further and higher education: The technological skills of the polytechnic, for example, have been

put to practical use by the university itself, with students helping to equip laboratories and build study accommodation for an engineering degree. The integration of disciplines and levels of study was a primary objective in setting up the university in 1964.

Fewer than 5,000 students attend the four campuses, which are spread around the country. The university's headquarters are at Chancellor College, in the liberal arts are based; the polytechnic, which offers business studies as well as science and technology, is in the new capital of Blantyre; Bunda College of Agriculture, which offers degree- and diploma courses, is at Lilongwe; while the newest addition is the Kamuzu College of Nursing, also at Lilongwe.

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COMMONWEALTH UNIVERSITIES TODAY

Putting the accent on the positive

CANADA

Canada's universities will open their doors to the public this autumn in an attempt to convert taxpayers and politicians to the cause of higher education. Worried that their role is misunderstood and their value under-rated, the universities are staging a week long public awareness campaign.

National Universities Week in October represents a shift in emphasis for Canada's beleaguered universities. Their shrill cries for increased funding have gone largely unnoticed by a populace facing high unemployment and painful cuts in basic social services.

"Universities could have developed an image of screaming for money," said Allan K. Gillmore, executive director of the Association of Canadian Colleges and Universities. "Instead, we want to present a positive image to the public. National Universities Week is not a panacea and does not get rid of the problem of under-funding, but we hope it will create an understanding and that people will be more likely to be supportive."

Universities are also increasingly looking to the private sector for support. A corporate Higher Education Forum, modelled on its American equivalent, held its first meeting in Montreal in May and future meetings are already planned. In April, the Institute for Research on Public Policy joined forces with a group of Canadian faculty associations to sponsor a conference in Edmonton entitled "The business community and the university: the need for collaboration."

"The public and many of our own students and graduates do not understand universities," says Howard K. Petch, president of the University of Victoria. "They see them as job-oriented, degree-granting colleges. They don't grasp the importance of scholarship and research. As a result, politicians have discovered that they can make cuts in post-secondary funding without a public outcry."

Government responses to the recession have already cut deeply into university budgets in most provinces, with higher education suffering a disproportionate share of public spending cuts. Even within the education sector, post-secondary institutions in many parts of the country have seen their operating grants rise only slightly in real dollars over the past five to 10 years.

The lack of funds has brought enrolment quotas and hiring freezes to all but a handful of institutions. And the graduation ceremony in protest at the sacking of two lecturers, and the university's vice-chancellor, Dr Dennis Irvine, announced his resignation.

Addressing the ceremony, Dr Irvine said: "I came fired with enthusiasm, but... I am going with resignation. A Jamaican, he had been in the post for 13 years."

Of the two lecturers, one was subsequently reinstated; the other, who was known as an active member of the

of the bitter disputes could prove harmful to their interests.

With most research projects funded through one of three federal granting agencies, support has not been a subject of federal provincial dispute, except in Quebec where parallel structures exist. Levels of funding, however, remain controversial.

Like block grants for operating assistance, budget allocations for the three research councils were originally legislated to follow the federal government's six and five programme. The Medical Research Council and the Natural Sciences and Engineering Research Council were actively exempted earlier this summer when additional funding over two years was announced for each of the agencies.

The £136m now promised for the Natural Sciences and Engineering Research Council for 1983/84, which is 18 per cent more than it received in 1982/83, illustrates the government's new commitment to science and technology. Through the Medical Research Council, health science has also received a boost. The £72m for 1983/84 is 26 per cent higher than the 1982/83 allocation.

Only the Social Sciences and Humanities Research Council remained tied to the six and five programme, at least for 1983/84. Its grant of nearly £32m is a 5.9 per cent increase on 1982/83. If approved by the federal government, the five-year plan beginning in 1984/85 could exempt the council from the restraint programme's second year.

"It's obvious that, in education, you can always justify whatever money is available," says Allan Gillmore. "Funds will never be adequate for universities to do everything they can and should be doing."

But the under-funding of the past decade worries everyone in the university community. While paying need, that quality has not yet suffered, Gillmore sees warning signs of the potential deterioration. Physical plant and research equipment are aging less gracefully in some institutions, he says, and student-staff ratios are rising uncomfortably in others.

According to Gillmore, the major challenge facing universities in coming

years will be to find adequate funds to fulfil their role without allowing quality to suffer. "So far, the Canadian system has managed remarkably well. But we have to find ways to maintain our standards of excellence if the fiscal restraint of the past 10 years continues indefinitely."

Faced with shrinking tax revenues, governments are intervening in university operations in the name of restraint. In British Columbia, for example, the provincial legislature is now studying a series of bills designed to dismantle the job security throughout the government service. Academic tenure is expected to be one of the casualties of the legislation, which also permits dismissals without cause or due process and gives the government increased administrative and curricular powers in the province's community colleges. Last year, Quebec faculty were forced to return a negotiated pay increase through temporary wage cuts and then had new three-year contracts imposed on them by law.

Governments have also tightened their grip on post-secondary institutions in subtler ways. Rationalization has become a political catch phrase across Canada as provincial education ministries attempt to control or eliminate duplication of expensive programmes and facilities. Universities themselves have been promoting joint programmes and research for a number of years, but have become nervous of government suggestions that entire faculties, perhaps even institutions, may have to be sacrificed in the name of rationalization and restraint.

Political influence over Canadian universities is minimal compared to other countries, but the trend towards direct government involvement clearly has made universities worried about the future of academic freedom.

Fiscal restraint has also called into question government policies on accessibility. "Blatant may yet creep back into our universities because of economic realities," says Gillmore. "It's certainly cheaper, but it may not be politically attractive."

While Gillmore acknowledges that the academic situation may be contributing to the increased interest in the university education, he is convinced that there are other reasons. Enormous pressures may be more acute in job-related courses but students are again interested in areas of no job guarantees, like education and the humanities.

Association of Canadian Universities

Co of Dickens' Steam Excursion, Messrs Mack and Matheson were not quite right anyway. It takes two to tango and conference participants are more important than its organizers. In this case, the anglers are favourable and the delegates (being vice chancellors, chairmen of university councils, industrialists, public figures and distinguished professors) are both clever and good; and will confound Elizabeth Wordsworth:

If all the good people were clever, and all clever people were good the world would be nicer than ever we thought that it possibly could but somehow this seldom or never the two bit it off as they should; the good are so harsh to the clever.

They assemble for serious purpose (the analysis of their institutions' role in the second industrial revolution) in pursuit of a noble objective formulated 70 years ago, but probably more valid today than ever before: to facilitate

common and concentrated effort, comparison of experience and ready exchange of ideas through an association that Lord Ashby once described as being one of the most powerful forces uniting the countries of the Commonwealth. They will be assisted in their task by over 40 opening speakers from every continent, who are not merely illustrious but expert.

True, they will dance a little, metaphorically speaking, since their host city and university have long traditions of extending a warm welcome and generous hospitality to people from all parts of the Commonwealth and while it is the collectivity of British universities who are formal hosts, their strengths and skills will, in this as in their other works, be fortified by the active involvement of the city fathers. So, on with that dance: all the instruments are finely tuned and the only legitimate emotion is avid relief.

A. Christodoulou

The author is secretary general of the Association of Commonwealth Universities.

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IN YOUR AUDIENCE

to be appointed for a period of one year as an assistant professor. Applications for the post are invited from persons of proven competence and ability to attract students with a particular interest in comparative and/or Roman Law.

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Applications (in two copies containing curriculum vitae, details of previous employment, and two references) should be sent in duplicate to the Director of the Office of the University of Cambridge, 100 Brook Hill Drive, Cambridge, Mass. 02139.

Salary is \$23,500 per annum.

Further details obtainable from Professor J. H. J. van der Meulen, Department of Law, University of Cambridge, 100 Brook Hill Drive, Cambridge, Mass. 02139.

For a complete curriculum vitae, please send a stamped, self-addressed envelope to the Director of the Office of the University of Cambridge, 100 Brook Hill Drive, Cambridge, Mass. 02139.

Overseas

KUWAIT

University of
Kuwait Health Science Centre
Faculty of Medicine

MEDICAL SCIENCE AND
CLINICAL APPOINTMENTS

Applications are invited for the following appointments in the Faculty of Medicine:

Anatomy
Assistant Professor in Gross Anatomy. 2 posts
Candidates should have sufficient experience in teaching of topographic anatomy in addition to one other discipline of anatomy, e.g. Histology, Embryology or Neuroscience. He should be able to conduct classes independently for medical, dental, allied health and graduate students. Candidates are also expected to have a proven record of research excellence in the specialty preferably in the morphological sciences e.g. ultrastructure. Preference for the above posts will be given to suitable, medically qualified candidates.

Community Medicine
Assistant/Associate Professor of Occupational/Environmental Hygiene in the Department of Community Medicine and Behavioural Sciences. 1 post
Candidate should be academically qualified and able enough to organise teaching to undergraduate and postgraduate level.

Medicine
a. Professor of Dermatology
b. Associate Professor of Infectious Diseases
c. Associate Professor of Endocrinology
d. Associate Professor of Respiratory Medicine
e. Associate Professor of Nephrology
Candidates will be expected also to have a general medicine commitment.
f. Non-Medical Assistant Professor. 2 posts
Candidate would be responsible for the Lipid laboratory and the other should have enough experience in general biochemistry and radio immunoassay techniques.

Microbiology
a. Clinical Microbiologist at Associate or Full Professor grade. 1 post
The candidate should be medically qualified.
b. Microbial Geneticist in Microbial genetics at Assistant Professor grade. 1 post
Candidate should be medically qualified and efficiently able to teach undergraduate and postgraduate students.

Pediatrics
Professor/Associate/Assistant Professor in general paediatrics. 3 posts
Experience is required.

Physiology
Assistant Professor (Neurophysiology) 1 post
Candidate must have a broad background in general neurophysiology with potential for a balanced contribution towards teaching and research development.

Pathology
Full Professor, Clinical Chemistry 1 post
Associate Professor, Histopathology 1 post
Full Professor, Histology 1 post
Associate Professor, Haematology 1 post

Pharmacology
a. One Assistant/Associate Professor of Pharmacology.
Candidate should have done research in Cardiovascular Pharmacology as well as having adequate ability to teach undergraduate and graduate pharmacology.
b. Professor of Clinical Toxicology-Pharmacology 1 post
Candidate should have adequate experience in the field of clinical toxicology (drug monitoring and poison control). Teaching experience in Pharmacology/Toxicology is also required.

Gynaecology and Obstetrics
a. Full Professor 1 post
b. Associate Professor 1 post
c. Assistant Professor 1 post
Candidates must be medically qualified and have suitable clinical and teaching experience. A knowledge of Arabic will have some weight during the selection process.

Radiology and Nuclear Medicine
a. Associate Professor in Radiopharmacy 1 post
b. Assistant Professor in Radiopharmacy 1 post

c. Assistant Professor in Clinical Nuclear Medicine 2 posts
Experience, research and ability to teach are highly required.

Medical Physics
a. Assistant Professor to work with the Medical Physics Group in the Department of Radiology and Nuclear Medicine 1 post
Candidate must have involved in undergraduate and postgraduate teaching and basic and clinical research. Knowledge of computers applied to medicine is desirable.

Surgery
a. Professor in Plastic and Reconstructive Surgery 1 post
b. Professor in Orthopedic Surgery 1 post
c. Assistant Professor in Orthopedic Surgery 1 post
d. Professor in Neurosurgery 1 post
e. Associate Professor in Neurosurgery 1 post
f. Assistant Professor in Neurosurgery 1 post
g. Professor of ENT Surgery 1 post
h. Associate Professor in ENT Surgery 1 post
Candidates for surgical posts should have at least 5 years' clinical and teaching experience in their respective specialties.

Requirements for appointment
Applicants should possess a Ph.D. or higher professional qualification, in their respective specialty and have conducted and published research in their field. Professors should have 14 years' experience, 4 as an associate professor or its equivalent, i.e. senior lecturer or reader. Associate Professor should have 9 years' experience, 4 as an assistant professor or its equivalent, i.e. lecturer.

Conditions of appointment
Salaries - Total monthly salaries will be within the following scales, according to qualifications and experience (1 KD = 22.2, US\$3.4 approx).
Professors with clinical appointments = KD 1,210-1,370 (8 increments).
Professors medically qualified with medical science appointments = KD 1,140-1,300 (8 increments).
Professors non-medically qualified = KD 1,070-1,230 (8 increments).
Associate Professors with clinical appointments = KD 980-1,140 (8 increments).
Associate Professors medically qualified with medical science appointments = KD 930-1,090 (8 increments).
Associate Professors non-medically qualified = KD 870-1,030 (8 increments).
Assistant Professors with clinical appointments = KD 780-920 (8 increments).
Assistant Professors medically qualified with medical science appointments = KD 720-880 (8 increments).
Assistant Professors non-medically qualified = KD 680-840 (8 increments).
Clinical supplements: In addition to the above University salaries there will be a monthly clinical supplement paid by the Ministry of Public Health for ten months a year to medical school staff with clinical service commitments. These are:
Professor and Chairman KD 250
Professor KD 200
Associate Professor KD 150
Assistant Professor KD 100

Conference: A member is entitled to attend one academic conference a year which would be subject to the University rules and regulations.

Gratuity: There is a gratuity of one month basic salary for each year employed payable on termination of contract.

Housing: Suitably furnished, air-conditioned accommodation, electricity and water free of charge.

Medical care: Free, comprehensive treatment is available in Kuwait under the State Health Service.

Travel: Air tickets are provided from the country of recruitment for the appointee, spouse and up to three dependent children under 20 years. Thereafter, return air tickets are issued annually to the country of citizenship or permanent residence. On termination of contract, air tickets are provided to the country of recruitment. A baggage and freight allowance is also provided.

Vacation: Sixty days paid annual leave and various national holidays.

Education: This is provided free in State schools where the instruction is in Arabic. Staff who have to send their children to non-Arabic schools in Kuwait will have the tuition fees of up to a maximum of three met by the University.

Taxation: There is no income tax in Kuwait. Currency is transferable without restriction.

Method of application
Curriculum vitae in duplicate, which should include the names of three referees, personal particulars, qualifications with dates, career history, teaching experience, research accomplishments and, where appropriate clinical experience should be sent to:

The Dean
Faculty of Medicine
University of Kuwait Health Science Centre
PO Box 24823
Safat, Kuwait
to arrive no later than 30th October 1983.

UNIVERSITY OF KUWAIT

HEALTH SCIENCE CENTRE
FACULTY OF ALLIED HEALTH
SCIENCES AND NURSING

APPOINTMENTS IN
ALLIED HEALTH SCIENCES

Applications are invited for the following appointments in the Allied Health Sciences programmes. These are university-based degree programmes, with practical training carried out in the Hospitals of the Ministry of Public Health. The language of instruction is English:

Deputy Director in Radiologic Technology
Assistant Directors in Radiologic Technology
(2 posts)

Deputy Director or Assistant Director in Medical Records Administration
Assistant Director in Medical Laboratory Technology specializing in Microbiology and Immunology

The staff appointed will take part in the theoretical and practical teaching, and development and management of their respective programmes. The Deputy Directors will also serve as deputy to the Director of their respective programmes.

Requirements for appointment
Deputy Directors should hold the highest professional qualification in the field; be licensed to practice the profession; have at least 10 years experience of practice; have at least 5 years' teaching experience.

Assistant Directors should hold the highest professional qualification in the field; be licensed to practice the profession; have at least 5 years' experience of practice; have 2 years' teaching experience.

Conditions of appointment
Salary: Total monthly salaries will be within the following scales according to qualifications and experience (KD 1 = £2.1, US\$ 3.4 approximately).

Deputy Director: KD 570-720
Assistant Director: KD 470-620

In addition, there will be a monthly supplement of KD 100 for 10 months a year paid by the Ministry of Public Health. There is no income tax in Kuwait and currency is transferable without restriction. Free furnished, air-conditioned accommodation is provided and electricity and water supplied free of charge. Sixty days summer leave for each completed year of employment, and annual economy class return air tickets to the country of citizenship or permanent residence are provided for the appointee, spouse and three dependent children under 21. Comprehensive medical treatment is available under the State Health Service.

Applications in duplicate, including full curriculum vitae, 2 recent passport photographs and the names and addresses of three referees, should be sent to: The Dean, Faculty of Allied Health Sciences and Nursing, University of Kuwait, PO Box 24823, Safat, Kuwait to arrive not later than 15th November 1983.

DARWIN COMMUNITY COLLEGE

SCHOOL OF GENERAL STUDIES

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Position No. GS 56

Salary Range: \$22,430-\$25,648; \$26,251-\$29,467 pa

This new position within the College's Department of Education Studies is offered as a tenure position.

DUTIES: The successful applicant will be required to teach internal and external Educational Psychology units and other appropriate units to undergraduate and postgraduate students in the College's Diploma of Teaching, Bachelor of Education and the Graduate Diploma in Education courses.

QUALIFICATIONS: Minimum qualifications for this position are possession of a good Honours Degree in Psychology together with teaching qualifications.

Desirable additional qualifications include a relevant higher degree in Psychology, together with tertiary teaching experience and eligibility for membership of the Australian Psychological Society or its equivalent.

Applicants with extensive relevant school experience as an Educational Psychologist and/or in Special Education and/or expertise in the area of cross-cultural psychology will be given serious consideration. School teaching experience and/or ability to lecture in a curriculum area would be advantageous.

COMMENCING DATE: As an entry appointment to this position is envisaged, applicants should advise their earliest possible starting date.

CONDITIONS OF SERVICE: In addition to salary, a district allowance of \$2,080 pa (with dependent) or \$1,176 pa (without dependent) is also payable. A copy of the College's conditions of service, together with an information statement on the above position and the APPLICATIONS: Applications, in black ink, in duplicate, including full personal details, age, qualifications, previous appointments and experience, the names and telephone numbers of three referees, together with a telephone number where applicants can be contacted, should be forwarded to:

The Senior Personnel Officer
DARWIN COMMUNITY COLLEGE
PO Box 40149
CASUARINA, N.T. 0725, AUSTRALIA
Closing date 31st August 1983

Overseas

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Thermal engineering, engineering mechanics, production technology, workshop technology, engineering drawing.
- DEPARTMENT OF ELECTRICAL ENGINEERING
Electro techniques, electrical machines, power systems.
- Teachers of English as a Foreign Language are also required.
- Applications are also invited from spouses of applicants for any of the above posts for a position as teacher in the Institute's primary school. Applicants should be qualified and experienced teachers at primary level. The salary will be approximately LD1659 PA net.

II TECHNICIANS

Technicians are also required in the above areas. Applicants should have at least an HND or equivalent and have some experience.

- Gross annual emoluments range as follows:
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| PROFESSORS | LD11,760-LD13,110 |
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| LECTURER | LD8,760-LD9,510 |
| ASSISTANT LECTURER | LD7,541-LD8,756 |
- *The technical staff pay scale depends on qualifications and experience. Salaries are on an increment scale. The rate of exchange from Libyan Dinars to £ Sterling is approximately 1LD = £2.1.

- In addition to this, successful candidates will receive the following benefits:
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 - Baggage allowance for transportation of personnel effects up to 25% of air charges.
 - Air tickets for annual leave are provided for self and family as mentioned above.
 - The Institute pays a research allowance of up to 35% of the basic salary.
 - Free medical services for the staff member and family.
 - On termination, the staff member will receive a gratuity of two months pay for each completed year of service payable at the end of the contract.
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Applications in writing please, enclosing the names and addresses of two referees, curriculum vitae and day time telephone number to:

Mr Klaus Rhy-Jones, Education Division

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Closing date: 15th September 1983.

AUSTRALIA

JANET CLARKE HALL

THE UNIVERSITY OF MELBOURNE

PRINCIPAL

Applications are invited for appointment as Principal of Janet Clarke Hall, a co-educational, residential College of 100 members, affiliated with the University of Melbourne. The Hall is an Anglican foundation. Salary and benefits are linked to the University salary range of Senior Lecturer (A\$30,096-A\$35,077). Applicants should write to the Chairman of Council, Janet Clarke Hall, Parkville, Victoria, 3052, Australia, to obtain a statement of the duties of Principal and conditions of appointment. The successful applicant should take up the position at the beginning of 1985. Applications close by 30 September 1983.

THE UNIVERSITY
OF WESTERN ONTARIOCHAIRMAN,
DEPARTMENT OF HISTORY

Nominations and applications are invited for the position of Chairman of the Department of History, Faculty of Social Sciences, effective 1 July, 1984.

A Senate Selection Committee recommends an appointment for a three- to five-year term, renewable.

Nominations and applications should be sent to: Chairman of the Selection Committee, Professor Denis Smith, Dean, Faculty of Social Sciences, The University of Western Ontario, London, Ontario, Canada N6A 6G2.

The deadline for submission is 15 October, 1983. In accordance with Canadian immigration requirements, the advertisement is directed to Canadian citizens and permanent residents.

UNIVERSITY OF NATAL
Department of Mathematics and
Applied Mathematics
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Applications are invited from suitably qualified persons regardless of sex, religion, race, colour or national origin for appointment to the post of:

SENIOR
LECTURER

Salary in the range:

R16,567 to R24,048 pa

The commencing salary notch will be dependent on the qualifications and/or experience of the successful applicant. In addition, a service bonus of 83% of one month's salary is payable annually. Application forms, further particulars of the post and information on pension, medical aid, group insurance, staff bursary, housing loan and subsidy schemes, long leave conditions and travelling expenses are obtainable from the Secretary, South African Universities Office, Chichester House, 278 High Holborn, London WC1V 7HE or the Registrar, University of Natal, King George V Avenue, Durban, 4001 to whom applications, on the prescribed form, must be lodged not later than 31 October 1983, quoting the reference D108/83.

Further particulars from the Registrar, University of Natal, King George V Avenue, Durban, 4001, or from whom applications should be sent by 5 September, 1983. H1

Universities cont

University of
Bradford
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ASSISTANT

Applications are invited from graduates or holders of an equivalent qualification for appointment as Administrative Assistant in the Registrar and Secretary's Department. The work will initially be in the Planning Services Division which is concerned with the provision of a wide range of information and statistical data. The post is particularly suitable for a young man or woman with some work experience and a keen interest in University administration. Initial salary will be within the lower part of the scale £6,510-£11,615 p.a.

Further particulars from the Registrar, University of Bradford, Bradford, West Yorkshire, BD9 4JL, or from whom applications should be sent by 5 September, 1983. H1

The University of
Sheffield
OFFICE OF THE REGISTRAR
SENIOR ASSISTANT/
ASSISTANT
REGISTRAR

Applications are invited from suitably qualified and experienced persons for the post of Senior Assistant Registrar in the Academic Services Department. The Registrar's Office is the Registrar and Secretary's Department. The Registrar is responsible for the administration of the University's academic affairs. The Registrar's Office is also responsible for the administration of the University's financial affairs. The Registrar's Office is also responsible for the administration of the University's legal affairs. The Registrar's Office is also responsible for the administration of the University's medical affairs. The Registrar's Office is also responsible for the administration of the University's dental affairs. The Registrar's Office is also responsible for the administration of the University's veterinary affairs. The Registrar's Office is also responsible for the administration of the University's agricultural affairs. 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Don's diary

Monday

Arrive to face my correspondence shakedown since the previous week. Hiding the pile under the corner of my lino (floor coverings symbolize their owner's status in the university hierarchy as much as in the Civil Service) only helps until I trip over it. Excavation now reveals the inevitable pile of bureaucratic communications with contents like: "Your pension calculations are enclosed on the accompanying 24 pages" or "We regret to announce the serious injury suffered by the university safety officer, struck down yesterday by the collapse of his information tray". This morning brings a note on fire drill closely followed by an Asian student who inquires whether university fires always begin at times fixed in advance.

My teaching session this morning brings the usual problems. Ever since I designed this course which applies some social anthropological skills to the needs of rural development managers I have struggled with a wide array of students' objections to their work as well as their doubts about anthropology itself. These are in addition to trying to improve my teaching abilities, overcome language and cultural misconceptions and squeeze the course material into the permitted time.

There is some encouragement however. In spite of the problems and my inability to offer a simple comprehensive strategy for their work, by the middle of the course the students become enthusiastic. This continues in their work or so the evaluations suggest.

Tuesday

Hectic day which begins ominously. Discover the staff-student common room has run out of coffee (my responsibility), so hurry out to purchase more. Just check if Brazilian, Tanzanian, Guatemalan or whatever origin and remove labels. Memories of my bulk purchase of coffee when prices fell, and how that led to protests from those who felt I was exploiting the coffee workers. The next protest to arrive was a reminder from others not to increase the level of the coffee subscription.

Morning tutorial with a Nepali student reveals a characteristic personal worry for him. After 14 years managing agricultural development programmes he fears that he may have lost his ability to cope successfully with a postgraduate course. Our discussion cannot be hurried, for culture-shock and other fears are very real. Indeed I marvel at the flexibility of most trainees who do come to terms with a puzzling new educational and social framework within a very short time. Staff meeting. This afternoon we are due to review our publicity materials for the coming year for the programme handbook. Having observed the trend in other university departments towards more attractive advertising, we argue over the approach we favour, and how much glossy paper, photos or artwork will cost. Leave meeting at 5.40 pm with a packet of industrial, race, trade descriptions and equal opportunities legislation still fresh in my mind.

Wednesday

Storm before the calm? Wake with an ominous feeling of unease. Probably not caused by my dreams of blurring an advertising agency to polish our image and promote my teaching. "Anthropology - Strong and Free". "Come, come, come and listen to the talking drum" - I am sitting there, trying to remember that I am in the middle of a meeting to reach Heathrow with three minutes to spare only to find the flight delayed for two hours.

Visiting Milan provides a certain compensation for those conference and chess uncertainties. Even if only for a couple of days. This conference of the European Association of Rural Development Studies is a very interesting

extremely friendly gathering. Meeting colleagues involved in the same work usually helps me to clarify my ideas as well as to discover fresh problems. For this reason whenever possible I avoid the more crowded symposia in favour of those where some discussion is possible.

Most conferences have their memorable moments. In Ireland a couple of months ago this came when the local mayor, nerves interfering with his speech of welcome, told us that the Danes founded Bangladesh. Today at a time when some of us worry about misappropriation of development programmes funds, I notice a paper entitled *The Lactation of Training Programs for Third World Development Workers*. Location would never have sounded so good.

Thursday

Wake up in converted monastery, opposite the church of Santa Maria delle Grazie. Apparently the original inhabitants vacated the building in favour of something warmer in winter, but since then the EEC designers have taken over. The decor is strikingly modern and pleasing, even though it does take me 10 minutes to discover where the bed is concealed.

Walking through Via Magenta this morning to our conference location the growth of the Italian protection "industry" strikes me. Surely there are many more armed guards since I was last here? All prestige apartment blocks, banks, company headquarters and business directors seem to have hired individuals who make Securicor look like park attendants; for these guards bristle with machine-guns and handguns. Since our conference is totally unguarded it is easy to gauge the degree of significance in which "development" is held here as in much of the rest of Europe and North America.

Friday

Returning this morning on a British Airways plane I am hit on the head by a falling ventilation and light unit. Watching the wings swaying gently in flight I wonder what else may be shaking loose that we cannot see - until too late. But that is too close to home for many "development" programmes. We often fail to notice which critical components of change are going wrong until the damage is done.

Get back to my office and that pile of letters. Make them disappear under the lino. One of my Masters students arrives to announce she has selected her dissertation topic but doubts whether her work experience can easily be compressed into the form required by an academic programme. She makes a good point. While successful "development" is more frequently measured in writing but effective practical problem-solving, our training tries to assess these practical skills in terms of understanding theory. And we do not try to assess physical stamina which often counts equally highly.

In this case we agree that the plan the basis of a new adult extension education programme through the medium of a dissertation. Hope privately that she will be more successful than I am at resolving this problem of assessment with her trainees.

Saturday

The longer I work in this field, the more good sense I discover in Voltaire's injunction (through Candide) to the effect of our garden. I enjoy trying to grow vegetables and when I am at home usually spend at least part of the weekend in this way. This weekend in the garden is especially welcoming when I remember that, with colleagues, I am due to leave the annual field visit in northern Portugal next Wednesday. Physical fitness is probably the most important quality for today's development worker.

Tom Gabriel

Thoughts about our customers

Tessa Blackstone the week before last rightly asked why universities and polytechnics, as large employers of labour, have not even made use of cheap labour (my words, not hers) from the Youth Opportunity Programme, let alone helped in the massive expansion of the Manpower Services Commission and the new Youth Training Scheme.

It was FE that rose to the challenge of training the trainers and proved unexpectedly flexible (all that buried and brow beaten talent of the lecturers). But the universities did sweet nothing. The answer may not be simply ignorance, inertia, introversion or the unions, but more commendably shame.

Shame is a basic human emotion. Perhaps through the reading of novels, psychology or professional rivalry, a sense of shame still survives even among full-time tenured university staff, however skillfully we remove ourselves from life. If library, clerical, maintenance, canteen, cleaning and porterage facilities skills were dramatically increased by use of YOPs, embarrassment rather than pragmatic gratitude might dominate. And we would also wish to spare our students the embarrassment of the actual presence of their contemporaries who did not choose their parents with care.

Over-qualified secretaries on poor salaries who "like the university atmosphere" flatter us, but would we and our pensioners and the straight-from-school students on state grants feel that all our activities were - to coin a phrase - "self-justifying"? If conducted in front of YOPs? Not all of the 250,000 workless school leavers would look equally grateful, especially those aware that only about 20 per cent will find jobs when the training is over. I fully believe that even Oxford and Cambridge, despite their declining services, would feel (except at Peterhouse) shame at having YOPs as servants, scouts, beadles or whatever. Our very literacy (well, most of us) makes YOP sound not merely close to YOB but associative with YAHOO (which, I point out, has five letters like PROLE).

Tessa Blackstone also noted a contrary trend among the favoured young: the "year off" fashion - that spontaneous movement of the three A-levelled young to "do something real" before coming up. A snag, she said, is that they can compete for jobs with the ordinary school leaver; but an advantage is that they gain some experience of the real world of signing on and the dole queue.

But the main advantage may be to



Bernard Crick

the universities and polytechnics: being a year older and having been out and about, they waste less time in the first year with the silly, trivial, human problems of living away from home for the first time. But in fact, "doing something real" is often less the motive than a consequence of wanting to travel and a belief in "independency". My number two son has just done four months in a bookshop wrapping and despatching, two on a kibbutz and six weeks on the road in Egypt and Turkey until his money ran out. And he now signs on. I don't like that, but he sees it as his "right" since he has worked, though both his mother and I would keep him for the three (or four?) months left for reading. They now like to be

One of the soundest parts of the bran tub of Labour's famous programme was the plank on continuing education

independent and to see the world. This is no "back to the people" movement, but simply a welcome and rather American lack of inhibition about casual work.

National policy is so wrong. One of the soundest parts of the bran tub of Labour's famous programme was the plank on continuing education. Neil Kinnock and Philip Whitehead had a real sense of the real needs of all the country. But there was nothing specifically or exclusively socialist in arguing (in effect) for a relative shift of resources from three year, straight-from-school full-time into a continuing education entitlement for all.

I am surprised that Sir Keith hasn't reached the same conclusions by another route: "self-help" and adult education can cut across both old Labourism and new Toryism. I hoped the Government would have forced the universities to devote more resources to non-degree work for mature students, to offer more higher studies in

small packets to meet specific local needs: not just extra-mural expanded slightly, but extra-mural taken fully and made a central concern of all departments, a normal part of a day's contracted work.

No, not another pean for Birkbeck and the OU principle. I'll appear, obsessed, and one of them blow my own trumpet well enough. Rather, how worthy and how unselfish are the five centrally funded full-time residential colleges of adult education: Ruskin, Coleg Harlech, Ffrifro, Hillcroft and Newbattle Abbey; and also the new Northern College mainly funded by local authorities and trades unions (not forgetting to wish good luck to a similar attempt in Ulster). Take Coleg Harlech, which I know best: remote, beautiful, lively, serious and a better provider of events to the local communities and of summer schools (not forgetting to wish good luck to a similar attempt in Ulster). Take Coleg Harlech, which I know best: remote, beautiful, lively, serious and a better provider of events to the local communities and of summer schools (not forgetting to wish good luck to a similar attempt in Ulster).

It has become almost entirely devoted to a full-time two-year diploma of the University of Wales with specialisms. Sixty-eight per cent of its students over a decade have gone on to first degree courses and 90 per cent to some form of further full-time study. The students are excellent. I've examined them and taught the product. And it was never exclusively Welsh, nor about half the students come from outside the Principality.

Thus its academic standard is high and it proves, once again, how large the pool of ability: far more people who miss out on or muck up school opportunities can not only merely benefit later but, I am convinced, more later of it later. The staff are also more mature. Mixing with the 18 to 21 age group all the time can have a bad effect.

Now it is endlessly debatable whether the Coleg has been right to turn itself so decidedly into a second chance feeder to the university. Moloch; and also to be so proud of its national standing in Britain. There is a case for a definitely Welsh national institution, in which others can study broader case even (as I have said before) for all higher education to cultivate local roots. There is a case for a Welsh national institution in Wales even apart from Welsh studies and educational achievement as recognized by the English, can contradict their own proper Welshness.

I'm less and less sold on the idea of a common high culture: the life of the provinces must feed and restrain the bureaucratizing centre. I notice how the great University of Edinburgh walks like a cat on eggs in its four hundredth anniversary celebration between preening its Scottishness and stressing its international reputation. That is one way.

on destroying the effective means for individuals and associations to protect their civil liberties and collective bargaining rights.

Tenure falls victim to 'cash restraint'

In fact, the government departments that are being abolished or reduced are ones that have been under public attack by this government in the past. Such actions do not give academic staff any reason to believe the minister's assurances that this government will respect academic freedom. It is not even clear, moreover, that the minister was consulted on the legislation prior to its introduction.

Although the BC government's legislation entails the most comprehensive attack on public sector employees, it is not unfortunately an only child. Under the guise of financial restraint, both levels of government, federal and provincial, have attacked public sector employees. Such a target for government's budget cuts is a target for government's budget cuts.

The Canadian Association of University Teachers views this statement at minimum as a *non sequitur*. CAUT argues that the reason that no one has been fired for their views is obvious: tenure has been an effective legal means of protecting academic freedom. A reading of the history of the Canadian university in the 1930s, 1940s and the 1950s indicates that a number of distinguished Canadian academics are the victims of purges or attempted purges.

Bill 3 is only one part of a package of legislation introduced by the BC government. The government also intends to abolish the provincial human rights commission and the child abuse rights of the ministry of human resources significantly reduce the budget for the provincial ombudsman, and legal aid reduce aid for non-secondary students by 40 per cent, and eliminate tenancy rights. The government appears intent

Ronald Levesque
The author is executive secretary of the Canadian Association of University Teachers.

LETTERS TO THE EDITOR

Margin of error in peer review

Sir, - Your peer review of politics (*THES*, August 5) should not be accepted unreservedly. While it identifies four or five centres of excellence judged by the research criterion, the remainder seem to me very much subject to a margin of error. The difficulty is compounded by the problem of delimiting politics compared with the other subjects of the peer review. To illustrate the point, what is on offer at Cambridge to the student of politics in terms of modern history would, if taken into account, lift that centre of learning appreciably.

The margin of error is affected by the lumpiness produced by the mobility and publication rate of individual scholars. A single publication, perhaps never to be repeated, may confer distinction on an institution. Again, a single scholar may raise the status of successive institutions. An illustration

is Professor Sammy Finer, continuously creative for decades, who has added in turn Keele, Manchester, and Oxford.

There is a danger in politics that the grant-financed machine - data-bank and computer - may take over and supplant creative thought. In the 1960s and 1970s a terrible languor befell British political science due to three reasons: a complacency with institutions that mirrored the wider complacency of society, a close identity on the part of many political scientists with the Labour Party, and a lack of critical distance between leading political scientists and leading politicians. There is now in 1983 every sign of fresh thinking, but in its time this languor affected centres of excellence along with the rest. When I investigated the subject as an independent observer a year ago, I was told repeatedly that

Manchester was not what it was and that it was living on the hump of former glories.

In spite of the machines it is still the insight and independence of the individual scholar that count. Again and again we are led to believe that it is the data that counts, yet write-ups of expensive data-collection exercises such as Butler and Stokes' *Political Change in Britain* are failed interpretations. There are a few masters in British political science and many journeymen, few masterpieces and much routine. To the student I would say: seek out the masters and cleave to them.

Yours sincerely,
KENNETH BURGIN,
The Louthams,
Whitehall Road,
Woodford Green,
Essex.

Police research

Sir, - Your report referring to criticisms of my research report "Are the Police Fair?" (*THES*, August 5) contains a number of inaccuracies. To my knowledge Mr Alan Waton has not criticized it and certainly Dr Anderson has not replied to any such criticism. That debate refers to entirely separate publications of the Social Affairs Unit. Nevertheless, the remarks attributed to Dr Baldwin (who I assume to be John not Robert) deserves some reply.

In fact, I have some sympathy for his view: it may, indeed, seem harsh to condemn a whole discipline for the misdemeanours of a few. However, while those whom I criticize may be a few, they are, unfortunately, an influential few. The image they purvey of the police as a malign influence is disseminated in popular textbooks; contained in the most widely cited references; contributes to the assumptions underlying research on related topics, such as race relations; is presumed by those engaging in sociologically-informed polemic (especially fol-

lowing the 1981 riots); forms an integral part of an Open University course; and has begun to inform journalistic treatments of police issues. The sociological profession does bear some corporate responsibility for allowing this false image to go largely unchallenged.

Although it was clearly beyond its scope to refer to all contributions to this topic, my report did address itself to research and argument which has now, sadly, become received sociological wisdom. It is precisely because I do care about my discipline that I am unprepared to allow such a view to go unchallenged. However, since my report clearly commends some sociological research, it should be clear that not all sociologists are guilty of the failings identified therein. It is because these honourable exceptions have gone largely unheeded, that the time has come to challenge this prevailing view more forcefully.

Yours faithfully,
P. A. J. WADDINGTON,
University of Reading.

Training engineers

Sir, - The Engineering Council's first statement on "Enhanced and Extended Undergraduate Engineering Degree Courses" (*THES*, August 5) sets out a number of recommendations to improve the initial education and training of engineers at all levels.

While there are points of detail with which I might argue, I very much welcome the whole tenor of the statement with its emphasis on multi-disciplinary education, an understanding of business and the need for engineers to keep abreast of their markets and innovation.

If the challenges facing industry are to be met successfully, then at least equal emphasis will have to be placed on the initial and continuing formation of technicians and technician engineers. Proper provision of market oriented, multi-disciplinary engineering innovators at the top implies also proper provision for those who have to carry out the detailed work. My council is working with engineering companies to develop and keep up to date BTEC courses for technicians and technician engineers who will still be employed well into the twenty-first century. We would welcome collaboration with the Engineering Council to match the development of the professional and the technician teams.

Yours faithfully,
Y. N. RAINE, Chairman,
Business & Technician Education Council.

Blind students

Sir, - Congratulations to blind student Pauline MacDonald; (*THES*, July 22) who has recently received her honours degree at Leeds University.

Readers may like to know that the Royal National Institute for the Blind is now helping another 340 visually handicapped students, like Pauline, in universities, polytechnics and colleges throughout the UK.

RNIB's student advisers discuss study methods and careers and provide grants to offset additional expenses such as for tape recorders or braille equipment. RNIB's student advisers transcribe books into braille and re-

cord them on tape for individual students. RNIB also publishes, jointly with the National Bureau for Handicapped Students, a leaflet for students and staff *Blind and partially sighted students in college* which is available in print, braille, or on tape free from RNIB, 224 Great Portland Street, London W1N 6AA.

Yours sincerely,
LUCILLE HALL.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and without on one side of the paper. The editor reserves the right to edit or amend them if necessary.

Nautical education

Sir, - It seemed unfortunate that your recent report on nautical education (*THES*, August 5) did not mention that the four centres being proposed by the National Advisory Body are South Tyneside, Liverpool, Southampton and Plymouth and that the case for them was cogently argued in extensive documents submitted to the board and supported by an HMI report.

The committee which reversed the narrow decision of the board is therefore to be congratulated in identifying the essence of the problem which is no the centres but the survival of nautical education in this country and all that means for British shipping and its obvious overtones for defence. Rationalization is in fact long overdue as was recommended by the Rochdale committee in 1970.

What is not generally understood is the considerable expense of nautical education, and with increasing technology it will become more so: ship simulators cost upward of £1m. Nautical education is best concentrated in a few centres with easy access to a range of advanced science and engineering disciplines.

Indeed, so important do we think this locally that the Cadet School, formerly part of the Plymouth College of Further Education, is now to become part of the faculty of maritime studies of the polytechnic. It also appears that Fleetwood and Liverpool polytechnics are contemplating a similar move. If, on occasions, the board acts politically, it is a reassurance that the committee's hand of restraint have and it generates a certain confidence that NAB is able to steer educational planning issues which are national rather than regional or local.

Yours faithfully,
MICHAEL ROBBINS,
Director,
Plymouth Polytechnic.

Cheshire fees

Sir, - I write to correct a misleading impression given by your report (*THES*, July 29) concerning remission of fees in Cheshire further education colleges.

It was implied in your report that the Liberal group on the county council had acted as the US Cavalry in rescuing further education students from the jaws and arrow of an outrageous fortune - that of being charged fees. This is wrong. The Liberal group in alliance with the Tories form Cheshire's ruling administration. It was they who promoted this attack on FE (as opposed to school) students. It was the Labour group, in conjunction with the non-political members of the education committee, which defeated the move. It is the Labour group, too, which has unrelentingly highlighted Cheshire's disgraceful failure to give educational maintenance allowances.

In this, Cheshire stands alone amongst educational authorities in the North West. No, the redskins in this matter have been the Tory/Conservative Alliance at County Hall. And it was they who had the red fees when obliged to withdraw their discriminatory policy at full council. If the Liberals next year are to support the introduction of EMAs, they will be jumping on Labour's wagon.

Yours faithfully,
I. ANDERSON,
Chairman of the Education Committee,
22 Clifton Road, Cheshire.

A worm's eye view of mission control

Before the National Advisory Body pronounces on its distribution of the dwindling number of pound notes in the central pool for advanced higher education - as well as on the future of student numbers, subjects, departments and institutions - it is perhaps timely to pause and consider the body's current stock among those who will be charged with making its recommendations work. This worm's-eye view is timely since all judgments, favourable and unfavourable, issued after the release of the "national plan" will naturally be accused of special pleading.

First of all we should recognize the extent to which the reputations of individuals and institutions with a powerful influence over the way in which the system has developed in the last decade are tied up with the future of the body. The local authorities, Her Majesty's Inspectors, the National Association of Teachers in Further and Higher Education, the Committee of Directors of Polytechnics and the Council for National Academic Awards have all invested heavily, although their representatives have been insulated by the curiously English device of service "in a personal capacity". As a result of this device we have had the unedifying spectacle of alternative "readings" of board papers and discussions by individuals apparently trading on behalf of their organizations. All such representatives justify their participation as a necessary and constructive step towards more rational planning for the sector. In doing so they have accepted compromises, some of which have locked them into decisions without any discussions of constructive alternatives.

For a start the adjective "interim" has been dropped from the title of the body and from all official descriptions of its functions. This has produced a more felicitous acronym, and strengthened the hand of those inside the body urging those of us outside to accept the short-term pain of surgery in the interests of longer-term therapy. More seriously, our representatives have with a few hiccups accepted first what they are primarily engaged upon is a cost-cutting exercise and secondly that a competent and responsible exercise can be carried out within the body's tight timetable.

Both of these latter decisions (even if they are more fully characterized as acceptance of the constraints of the wide-ranging implications) as the documentary evidence confirms. First there is the body's "consultative paper", now being considered by institutions, on the future shape of provision. Much has been made of the "convergence" between this and other statements in circulation: another consultative paper from the CNA, and the final report of the Leverhulme seminars. But any convergence is superficial.

The NAB, unlike the CNA and Leverhulme, has been from political point determined by the Government: that a viny must be found to keep the age participation rate respectable while saving money. Although the document is drafted in neutral terms it is not hard to discern a favoured solution of open access (a revised Robbins principle) at least cost through shorter courses and reform of the academic year. Unlike the other two papers NAB's ignores the principle of "even-handedness" across the binary line and the role of research and scholarship in the public sector.

On research it is revealing that another NAB paper has been circulated for comment suggesting holding back even more of the pool for competitive reallocation by the body. This prospect could be devastating for low-cost institutions determined to maintain viable academic communities as the average unit cost, thus further artificially depressed, falls.

Secondly, there is the question of the new plan well look like. Most of us will have sympathy with the hard-pressed under-graded NAB secretary, opposing the bulky envelopes submitted by local authorities and attempting to analyse a wealth of non-comparable data based on outdated curricular categories and insufficient guidance about the relationship between full-time, part-time and mixed-mode students. For one, an

confident that within the NAB there is the brain-power and awareness of issues that could lead to sensible recommendations about relative costs and demand for different subjects (the sophistication of the papers from their various working groups affirms this).

I am equally convinced that this cannot be accomplished by September. Instead the first NAB national plan will assign cash and student numbers to programme areas that not only collapse a spectrum of costs and demand within each (think of "languages and literature" or "other technology") but also ignore the one quarter of CNA-validated work that is concentrated in combined studies or multi-subject courses. The plan will, moreover, through a reliance on outmoded Department of Education and Science criteria for "class hours" and the weighting of part-time students, at best fail to acknowledge and at worst damage the schemes of those institutions who have significantly revised teaching methods in the interest of greater efficiency or moved towards a desirable integration of full-time and part-time work.

Acquiescence to this extent means, sadly, that the non-governmental participants have cashed in powerful potential assets in terms of independent judgment for the poor bargain of participation in a rushed and unconvincing operation. The Government has succeeded, more than it could perhaps have dared to hope, in an exercise of co-optation.

Motives for cooperation have, of course, varied. Inspectors have gained a new angle for leverage over curriculum design. The Nathe representatives, for whom higher education is only part of a larger constituency, have seen no particular danger in a fall in the unit of resource on one side of the binary divide against the background of their wider responsibility for non-advanced further education. The CDP remain engaged, despite one resignation and another formidable outburst of dissent (their secretary has reminded us that his members serve "in a personal capacity"), and perhaps see a chance to recoup some ground lost to the united colleges and institutes of higher education in the mainstream of the mid-1970s diversification of teacher training. The local authorities are holding on, well aware that in that part of the fiscal equation crudely termed "topping-up" they will retain final control over most marginal cases.

Then there is the CNA, highly conscious of its current profitability (the product chiefly of "windfall" extra registrations on its courses in the wake of UGC-inspired cuts in university student numbers) and its possession of the only really detailed archive of information about the system. The council has, to its credit, agonized hardest and most publicly about the price of participation. This price must surely include not only the effective end of its initiative on "partnership in validation" but also a rift between officers and members.

In public relations terms what we have received, most eloquently from the board's energetic chairman, is a mixture of threat and reassurance: institutions not co-opted fully within the body's hurriedly devised and confusing questionnaire on plans for 1984/85 have been told that if they are incapable of forward planning the job will be done for them. Individuals expressing doubts have been urged to be realistic in the face of Treasury-led demands and the certainty that if the individuals currently engaged were not in there fighting for the best interests of the sector "things would be so much worse".

At the risk of accusations of bad taste, I suggest that this behaviour pattern has a revealing parallel in recent history and political science. It reminds me particularly of the American State Department's masterly copation of the liberal-academic foreign policy establishment to its policy towards South-East Asia in the 1960s and early 1970s. How many missions will NAB be able to fly and retain any confidence within the academic community?

David Watson

The author is dean of the modular course at Oxford Polytechnic.